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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Cases of Tetanus, with Observations.* By SAMUEL G. WILMOT, F. R. C. S., Resident Surgeon of Steevens's Hospital.

THERE is not to be found amongst the numerous diseases which it is, from time to time, the hospital-surgeon's opportunity to witness, one more calculated to excite his commiseration and to enlist his sympathy,—one in the treatment of which he feels more deeply mortified at the imperfection of his knowledge,—and one which, consequently, urges itself with stronger claims on his consideration,—than that designated tetanus. Notwithstanding the vast improvement our knowledge of disease generally has lately acquired, tetanus, with other diseases of a kindred nature, still lies involved in much obscurity. Our knowledge of its pathology is still imperfect; we possess no fixed ideas of its anatomical characters; and as to its treatment we are completely in the dark. It is true the light thrown on

the physiology of the spinal cord by the investigations of Dr. Marshall Hall, the results of which have been confirmed by the experiments of Professor Müller, and still further corroborated by the more recent elaborate researches of Mr. Grainger and Dr. Carpenter, has tended considerably to elucidate the nature of this disease; but that kind of information which to the right understanding a disease is essential, we still require with respect to tetanus. This being the case, our treatment could be nothing but empirical, and such it has always been. But even long experience has not supplied a knowledge of the means of cure. For the testimony of all practitioners is to establish the facts, that the acute traumatic cases of tetanus almost invariably rush precipitately to a fatal termination, apparently uninfluenced by every therapeutic measure which the practitioner has it in his power to employ; while the idiopathic (except the very acute cases of tropical climates) and chronic traumatic varieties of the disease generally recover under the most opposite plans of treatment. With a view to describe the chief particulars of tetanus in the manner they can best be studied, I have put together four cases, in all of which the symptoms of the disease were well marked, and its more prominent features delineated. Each of these also, by possessing certain distinguishing characters, belongs to a different class, and thus serves the purposes of contrast. The first is a case of idiopatic tetanus; the second, one of the acute traumatic form; the third is a case of chronic traumatic tetanus; the fourth is rather an uncommon case, local clonic spasms having preceded for more than two days the supervention of tetanus, which they then accompanied nearly through its entire course. To the kindness of Mr. Cusack and Mr. Colles I am indebted for permission to avail myself of three of the following cases.

Case I.—William Brown, aged twelve years, was admitted into Steevens's Hospital on the 1st September, 1845, under Mr. Cusack. His mother gave the following history of his case:—On Wednesday, the 27th ult., at Donnybrook Fair, he was

placed on horseback, and, to prevent him falling, he was tightly tied on, by means of strong cords attached to his ankles, and brought under the animal's belly. In order, then, to show off the horse, he was made to gallop and leap for a considerable time. When taken down the boy was in a profuse perspiration, but, according to his own account, had sustained neither hurt nor fright. On the following day (Thursday) he complained of slight difficulty in swallowing, caused, as he said, by "lumps in his throat." His mother mistaking this for the effect of an ordinary cold, bathed his feet, and rubbed some camphorated spirits to the outside of his neck. On Friday morning he awoke with headach and stiffness in the articulation of the jaw, which he could not completely open. The entire of the same day he was observed to walk with a stiff gait, his head being quite erect: and he eat with his front teeth. On Saturday he experienced a shooting pain along the spine; and in addition to this, a rigid state of the muscles at the back of the neck was observable.

A medical man was now called in, who ordered a warm bath, blisters to the nape of the neck and loins, and a large dose of calomel. On Sunday morning regular spasms set in, for the relief of which he was bled, had another warm bath, and the dose of calomel was repeated. In the evening he was seen by Mr. Fleming, who, recognising the disease to be tetanus, recommended his removal at once to the hospital. On admission his countenance exhibited the true tetanic expression: the eye-lids were half closed, the eyes themselves possessing a remarkably brilliant lustre; the angles of the mouth were slightly retracted; the lips tightly pressed together, and the alæ nasi distended; sometimes his forehead was thrown into transverse wrinkles. These appearances collectively gave to the face a settled sardonic smile, but were more manifest during a paroxysm. He now lies, bathed in profuse perspiration, diagonally across the bed, on his right side; his thighs are drawn up towards his

abdomen, and his head and spine are curved backwards. None of the muscles, except the masseters, and those at the back of the neck and along the spine, are as yet rigid: the affection of the former deprives the patient of the ability to open his mouth beyond what can admit the introduction of one of the fingers.

The patient's chief distress seems to arise from the accumulation of mucus in the trachea, which he can with the greatest difficulty expectorate; the effort to do so always induces a paroxysm. During a paroxysm, which is but of momentary duration, the affected muscles become increased in rigidity, the opisthotonos is more marked, his respiration becomes hurried, his pulse accelerated, and the teeth are firmly clenched, by which his tongue is often bitten: his urine is sometimes expelled involuntarily. The interval between the paroxysms is, when the patient is perfectly quiet, a quarter of an hour; but during the remissions they are readily excited by the least movement, his attempting to swallow, or by the effort to expectorate. The eye-balls and pupils appear unaffected; bowels confined; tongue rather dry; thirst; pulse 110, small; urine scanty. Ordered a scruple of strong mercurial ointment to be rubbed into the thighs every third hour, and to have twenty drops of the tincture of Indian hemp every two hours. A piece of Indian rubber was inserted between the teeth.

Tuesday, Sept. 2. To-day he complains of a severe pain, which shoots from the ensiform cartilage to the spine. The abdominal muscles are slightly tense, trismus is nearly complete, thirst extreme, pulse quicker; the other symptoms are in no way altered. With a view to salivate him as speedily as possible, he was wrapped in a sheet smeared with mercurial ointment, as well as being rubbed. Continue Indian hemp. Ordered eight ounces of wine daily.

Thursday, 4th. Has been purged several times to-day. Omit mercury. An anodyne enema to be administered. Con-

tinue Indian hemp. The contracted state of the sphincter ani gave considerable opposition to the introduction of the enema tube.

Friday, 5th. Diarrhœa still continues; since its supervention perspiration has ceased; skin is now dry; the paroxysms are as frequent, but are not so violent. Mucus still collects in the trachea, and so copiously sometimes, that during a paroxysm there is fear of suffocation. He is hungry, but refuses to indulge his appetite, not so much from the difficulty he finds to swallow, as from fear of a spasm, which always results from the attempt. He complains of extreme debility. Sleeps none; thirst less urgent; pulse 120. Ordered an anodyne enema, with acetate of lead. Continue wine and hemp.

Saturday, 6th. Purging has ceased, and there is now a return of perspiration. He now lies stretched on his back; the abdominal muscles are more contracted; the muscles of the thigh and arm are somewhat rigid, as are also the pectorals; the muscles of the fore-arm and leg are unaffected. The paroxysms during the night were much less frequent. Ordered to re-commence mercury, the ointment of which is to be rubbed in actively, and the sheet spread with it to be again employed. Five grains of Dover's powder every two hours were substituted for the Indian hemp, which appears to have made no impression upon the disease. Wine to be increased to eleven ounces; to have chicken-broth.

Sunday, 7th. His attendant reports, that during the night the paroxysms were more frequent and violent than they have yet been. To-day, however, he is better; he can open his mouth a little wider, and can eat panada and arrow-root. Bowels confined; pulse rapid. Ordered an enema of plain tepid water. Wine, nourishment, and medicine to be repeated.

Monday, 8th. To-day the interval between the paroxysms is becoming very much longer. He lies on his back, with his lower extremities stretched, his feet extended, and the ankle

and knee-joints so stiffened as to be almost inflexible; the attempt to bend them by means of manual force is productive of excessive pain. Tetanus, more properly so called, may be now said to exist; almost all the voluntary muscles, except those of the fore-arms, appear to participate in the general tonic spasm. He craves for food, which he can now eat with comparative ease. Bowels not yet freed. An enema containing castor oil to be administered. Repeat the rest of the treatment.

Wednesday, 10th. Since last report he has seldom had a regular spasm; those which do occur are generally partial, being confined to the muscles at the back of the neck. Occasionally, however, he receives a sudden jerk of the entire spine backward; this is preceded by a darting pain along the course of the spinal column. Opisthotonos is still well marked; the dorsal and abdominal muscles have undergone no relaxation, the latter are remarkably hard and knotty. He can open his mouth nearly to the full extent, and can expectorate with tolerable ease the mucus which is still secreted in considerable quantity. Countenance less tetanic; perspires now only when he makes an effort; appears very drowsy; sleeps well; pulse 100; bowels never freed except by the assistance of enemata. He has not yet been properly salivated.

Saturday, 13th. He still improves; there are no regular spasms; his appetite has become voracious, which is a cause of much surprise to his mother, who states that previously to the accession of the disease he was always a very poor eater.

Tuesday, 16th. Though so long a time using mercury he has not been salivated. He changed his position for the first time to-day; he is now in a half-sitting posture in the bed. Still the dorsal muscles have not in the least degree parted with their rigidity, and the abdominal feel even firmer; the neck is retained steadily backwards. Though the ankle-joints are still extended and stiff, the muscles of the limbs are nearly relaxed; the rigidity appears to be in the joints themselves,

which he cannot bear to be moved. The expression peculiar to the disease has nearly disappeared, but enough remains to characterize the case. He is exceedingly irritable; speaking always seemed a trouble to him, but now, when questioned, his words in reply are short, and are abruptly pronounced, as if with considerable effort. Complains much of debility. Pulse has become slower.

The mercury was ordered to be omitted, and the Dover's Powder, which was reduced to three grains every fourth hour, to be continued. A liniment of belladonna to be rubbed along the spine. Wine and strong nourishment.

Thursday, 18th. He is occasionally seized with a sudden momentary spasm of the dorsal muscles. Countenance is improving; appetite less inordinate. To continue the same treatment. He has been eating meat for some days.

Friday, 19th. Was very restless last night; slept none; this he attributes to extreme dryness of the mouth and fauces, from more or less of which, he states, he has suffered for the last week. Other symptoms the same. Omit Dover's Powders.

Sunday, 21st. He left his bed this day for the first time. Spasms of the dorsal muscles still sometimes occur, and are so sudden that if they happen to seize him while standing, he would frequently be prostrated on his back, unless assistance were at hand.

Tuesday, 23rd. There has been no kind of spasm since last report. He can now stand more erect; the head is still carried somewhat behind the axis of the body; he can bring it, however, forwards, but not completely. The rest of the spine has now acquired rather an anterior curve, which, together with the elevation of his shoulders,—his head appearing to be buried between them,—give him a remarkable stoop. He can walk with the assistance of a stick, but finds much difficulty in doing so. He was recommended by Mr. Cusack to return home for change of air.

During the entire progress of this case the patient's intellect

was never at any period impaired; the cerebral functions never appeared affected. The muscles of the fore-arm were those only which were not implicated in the general tonic spasm which appeared to pervade all the other voluntary muscles of the body.

This is a very rare form of tetanus in these countries; our hospitals seldom afford examples of it. After perusing the history of the boy's case, as it was given by his mother, no one, I think, will doubt that the disease arose from checked perspiration, which a peculiar state of system, heightened, probably, by the excitement consequent upon concurrent circumstances, rendered effectual to produce; whereas otherwise simple cold might only have been the result of the same cause. The above case illustrates well the difference between the idiopathic and traumatic forms of tetanus, as well in the period at which each occurs after application of the exciting cause, as in the duration of their course and their termination. In the present case we would suppose not more than twenty-four hours elapsed from the time the patient was exposed to the cause, until the first indication of the disease was evinced. The medicines which were employed seemed to have had little effect, and the impossibility of establishing satisfactory ptyalism concurs with what has been generally observed in all forms of tetanus. The readiness with which general spasms were excited by the least impression on the extremities of the nerves, as by moving, swallowing, coughing, &c., affords strong pathological support to the theory of the reflex function, and demonstrates the dependence of tetanus upon the organ which is the seat of this function. The excessive secretion of mucus by the bronchial membrane, which, in this case, was a source of much distress, is a circumstance which usually occurs in tetanus, and it is much to be dreaded, for when spasm of the glottis co-exists, the former assists materially to produce suffocation. A point connected with this case which may be noticed is, the remarkable alternate action between the skin and intestinal

membrane; it illustrates the vicarious relation between these parts.

I have been kindly put in possession, by Mr. Fleming, of some particulars which invest this case with additional interest. This boy had been quite recently under his care with fever, in the North Union temporary Fever Hospital, and through the entire course of the disease tetanic complication was a prominent feature: rigidity of the muscles at the back of the neck which retained the head backwards, spasmodic twitchings of the facial muscles, and the characteristic expression of countenance, were the symptoms chiefly observed. Another circumstance noted by Mr. Fleming in this boy's fever was, a marked tendency to sloughing of all parts exposed to pressure, at an unusually early period of the disease. The first circumstance proves the predisposition in this boy's system to become affected by tetanus by whatever would make a powerful impression on the nervous centres; the second suggests the question,—does the energy of the true spinal cord hold an inverse relation to that of the brain?

Case II.—Patrick Tierney, between forty and fifty years of age, was admitted into Steevens's Hospital on the 19th March, 1846, under Mr. Wilmot, with extensive burn of the lower extremities, which he received two hours previously by falling into a lime-kiln. Almost the entire of the cuticle, from the knees down, was raised, hanging off in shreds in some places, thus leaving quite undefended the true skin, which was itself uninjured: from the knees to the hips were several large vesications. The burned surfaces having received the appropriate treatment, attention was afterwards directed to the accompanying fever, which, in the course of a few days, from being high, gradually assumed a typhoid character. On the morning of the 29th inst. (ten days from the receipt of the burn), while the denuded surface of the skin of the extremities appeared to be suppurating healthily, the following tetanic condition was, for the first time, observed: difficulty in swallowing,

with stiffness in the neck, and rigidity of the muscles in its vicinity; abdominal muscles tense and contracted; expression of countenance truly characteristic of the disease. He complained of severe pains shooting upwards from the legs and thighs. Ordered half a drachm of the tincture of Indian hemp every fourth hour.

9 o'clock, P. M. Since last report (twelve hours interval) the disease has made rapid progress. Paroxysms recur frequently; they last about a quarter of a minute, and are excited by every movement, especially the attempt to swallow. The dorsal and abdominal muscles are remarkably contracted; there is opisthotonos, though not in a very marked degree; trismus, which is almost complete. The countenance is more tetanic; pulse quick and weak; thirst; profuse sweating; bowels confined. There is some slight delirium. Ordered tincture of Indian hemp, to be given in the same dose every two hours; punch *ad libitum*. An enema containing turpentine to be at once administered.

30th, 9 o'clock, A. M. All his sufferings are much aggravated. The paroxysms are feebler, and of shorter duration, but the interval between them is rapidly shortening. The bronchial tubes are filled up with mucus, which adds much to his distress; debility extreme. Repeat the treatment prescribed at last visit.

10 o'clock, P. M. Has just expired in a paroxysm. For about twenty minutes previous to dissolution he was free from paroxysms, and the muscles were relaxed. A minute inspection of the spinal cord was instituted, but nothing beyond some congestion of its membranes on its anterior surface was discoverable. The other internal organs were examined; engorgement of the lungs was all that could be found.

The preceding case contrasts with the one before it in the length of interval from the cause to the effect, and its rapid progress to a fatal issue. The exciting cause, a burn, is very fertile in producing this terrible disease. The aberration of

intellect which was noted in this case is a circumstance which forms no exception to the usually observed unimpairment of the faculties in tetanus, for it was clearly attributable to the typhoid fever which had pre-existed, and which was, of course, exacerbated by the occurrence of this complaint. The exemption from spasm, and the relaxation of muscles for a short time previously to death, are occurrences frequently observed in tetanus ; and, indeed, when such conditions coincide with much prostration of the vital powers, they should be viewed rather as the precursors of dissolution than as the harbingers of recovery. The *post mortem* examination demonstrates what has been generally observed, an absence of any inflammatory signs ; the congestion which appeared was, probably, merely hypostatic, or the effect during life of the excitement of the cord.

Case III. ——Monks, aged 28, a butcher, generally healthy, and of temperate habits, was admitted by Mr. Cusack into No. 7 ward on the 30th December, 1846. He states that a month ago he bruised the top of the index finger of his left hand in a windlass. On the night of the 24th inst. he felt some pain in the injured finger, the nail of which was loose. The pain continued the entire of the following day ; this he attributed to the action of frost, which then prevailed. Throughout the day of the 28th he felt very drowsy, with a frequent tendency to yawn and stretch ; the former act he found he could only imperfectly accomplish, owing to some stiffness which he felt in the articulation of the jaw. The following is the condition of the patient on admission : countenance strongly tetanic ; trismus considerable ; the top of a finger can hardly be passed between the teeth ; masseter muscles very rigid ; rigidity of muscles of abdomen and at back of neck. There is no inclination to opisthotonos ; no difficulty in swallowing beyond what arises from the locked state of the jaws ; perspiration absent ; urine scanty, but normal in quality ; bowels confined ; pulse 92. The nail appears to be in process of separation ; pus

exudes freely from beneath it. Ordered a turpentine enema immediately; two grains of calomel, two of camphor, and four of Dover's Powder, to be made into two pills, which are to be taken every third hour; water dressing to the finger.

January 1, 1847.—The abdominal muscles have become more firmly contracted, and the dorsal are now rigid; there are no paroxysms, nor as yet opisthotonos, but he complains of cramp frequently in the abdominal muscles; jaws are more locked; occasionally there is spasmodic action of the masseter muscles, which gives rise to much pain; there is no mucus in the trachea, but his mouth is filled with a quantity of frothy saliva, from which there arises a strong fœtor; tetanic expression better marked; there is some perspiration, but it is confined to the head and neck; bowels freed by enema; pulse 112. Ordered half a drachm of mercurial ointment to be rubbed in every third hour; half a drachm of tincture of Indian hemp to be taken every third hour. To have eight ounces of wine, and strong beef-tea.

2nd. Slept well last night; he had one momentary paroxysm last evening; complains chiefly of spasm of masseter muscles; it takes place so suddenly and sometimes so violently that his tongue is frequently bitten by the teeth. The spasms occur particularly on his dozing to sleep; the muscles about the neck (which has now acquired a backward curve) are rigidly contracted, the sterno-cleido-mastoidei are particularly prominent; he had vomiting once during the day; partial perspiration more profuse; gums slightly affected by the mercury; pulse 100; bowels confined; urine high-coloured, with a lateritious deposit in it. To continue hemp, stimulants, and nourishment; the tincture of aconite to be applied over the masseter muscles.

3rd, 9 o'clock, A.M. Spent a very bad night; he has now slight momentary paroxysms, during which there is opisthotonos; they occur only seldom, and seem to be occasioned by any movement of his body; the spasms about the jaws are so severe every time he attempts to sleep that he is quite ex-

hausted for want of rest; he complains of a sharp pain shooting along the sternum from the ensiform cartilage; pulse 112. Ordered half a drachm of nitrous spirit of ether, and the same of laudanum, in an ounce of camphor mixture, to be taken every third hour; a drachm of the strong mercurial ointment to be rubbed in every third hour: punch in addition to his wine.

9 o'clock, P. M. He is easier this evening; has been dozing during the day, but never obtains a regular sleep; abdominal muscles are as hard as a board; pulse 100; his gums are smartly touched by the mercury: repeat the treatment.

4th. He is better to-day; the paroxysms have ceased; opisthotonos is only partial, being confined to the cervical portion of the spine; can open his mouth wider; tetanic expression less; still complains of cramps of the abdominal muscles, and also of the dorsal occasionally; pain along the sternum persists; pulse 100: repeat the treatment as before.

5th. He can open his mouth considerably to-day, and is seldom annoyed by spasms of the masseters; he can eat soft food without much difficulty; has lost the pain along the sternum; feels stronger; he is now actively salivated; pulse 120. Mercury to be omitted; stimulants, nutriment, and the draughts to be continued.

7th. He has got a change for the worse; the jaw is nearly as much locked as it ever had been, and the spasms about it are frequent and severe; the regular general spasms are few and slight; the neck is very much curved backwards, and he cannot make the least attempt to bring it forward; pulse 124. Omit draughts; the sixth of a grain of the extract of belladonna to be taken every two hours; punch and wine to be increased in quantity.

8th. Complains of extreme debility; there is now observable a more general tendency in the spine to opisthotonos; perspiration profuse; bowels confined; pulse 130, weak and compressible. An enema to be administered; belladonna repeated.

9th. Spine is more curved, but he feels himself better; all the muscles of the trunk, both anteriorly and posteriorly, are affected with tonic contractions; those of the neck are very prominent, especially the sterno-cleido-mastoidei, which stand out in relief; the outlines of some of the affected muscles are defined in a remarkable manner; the muscles of the upper and lower extremities are not engaged in the tetanic condition; the pulse has fallen several beats; perspiration less. Belladonna to be increased to a quarter of a grain; stimulants to be repeated.

10th. He is better to-day; pulse 104.

12th. He still improves; the muscles are yet, however, very rigid; but he suffers no longer from the local cramps he complained of, and the spasmodic action of the masseters: repeat the last prescribed remedies.

14th. Countenance has nearly lost the peculiar expression; muscles about neck much less rigid; he can bend his head slightly forwards. To continue as before.

20th. A great improvement has taken place; dorsal muscles are losing their spastic rigidity; but the abdominal and the pectorals are still firmly contracted; opisthotonos has disappeared, and he can now nearly touch his chin to the sternum; spasm of masseter muscles only occurs upon his falling to sleep; tetanic expression nearly gone; sleeps better; appetite good; bowels always confined, they require to be constantly freed by enemata; skin cool; no perspiration; pulse 100. Omit medicine; repeat wine, punch, and nourishment.

29th. Since last report he has made great progress; countenance has resumed almost its natural expression; all the muscles of the neck and trunk (except abdominal, which are still rigid), though firmer than natural, are so far relaxed as not to interfere with any movement of the body; he can bend his head completely forwards; feels a great acquisition of strength; perspires only at night, and not very much; appetite good; he has been for some days past eating solid meat; sleeps well;

pulse 88. The nail of the injured finger was, in the course of the disease, cast off, and upon his leaving hospital the part was perfectly healed.

The length of time that elapsed from the receipt of injury to the development of the disease, its long duration, and mild course, the fewness of general spasms, and its favourable termination, stamp the case just cited as a good example of chronic tetanus. The symptoms usually said to be premonitory of tetanus were here well marked, but how far they can generally be relied upon is very questionable. The absence of dysphagia, which was remarked in this patient's case, is an exception to the general rule; mostly there is extreme difficulty in swallowing, and it occurs at a very early period of the disease. Pain in the injured part, which in the present case occurred prior to the disease, is not always observed. The remedies administered appeared to exercise no decided control over the case; a slight amelioration in the symptoms was observable upon the establishment of complete ptyalism, but shortly afterwards they regained their original severity, and became even exacerbated. A point worthy of remark in this case is the great fluctuation which was observed in the rate of the pulse.

Case IV. —— Coyne, aged 30, a labourer, of healthy aspect, and temperate in his habits, was admitted into No. 4 ward, 15th October, 1845, under the care of Mr. Colles, in consequence of a severe compound and comminuted fracture of both bones of the right leg about its centre.

On the 25th instant (ten days from receipt of injury), he was seized with spasms of the leg and thigh of the injured limb; they recurred every two or three minutes, and lasted but for a moment, leaving the muscles quite relaxed. The sore, however, was looking healthy. Forty drops of laudanum were ordered immediately, to be repeated in two hours if necessary.

26th. The spasms still continue unabated. Ordered three

grains of camphor and one of extract of opium, every fourth hour.

27th. The spasms persist, and are more severe. They cause excessive pain by disturbing the fractured bones; the superior fragment of the tibia is violently elevated each time they occur. He complains of debility; pulse quick, small, and weak. A tourniquet was adjusted on the upper part of the right thigh, and was tightly screwed, so as to make considerable pressure on the muscles; the entire of the limb, from the foot upwards, was then firmly bandaged to the inclined plane, upon which it has been lying since the patient's admission into hospital. To continue pills, and have six ounces of wine.

28th. The pressure exercised on the muscles by means of the bandaging and the tourniquet has in some degree mitigated the pain, but the spasms still persist. Symptoms, however, of a much more serious import, are now appearing. He complains of stiffness in the articulation of the lower jaw, which he cannot completely open. There is some rigidity of the cervical muscles; his speech is thick, but he finds no difficulty in deglutition. Expression of countenance very peculiar. Repeat pills and wine.

29th. Though tetanus is advancing, the spasms of the injured limb have not changed their clonic character. There are as yet no true tetanic paroxysms, but the dorsal muscles are in a state of spastic contraction, which gives a slight degree of opisthotonos. There is profuse perspiration, and debility extreme. He wanders sometimes in his mind. Ten drops of black drop to be taken every fourth hour. Punch *ad libitum.*

9 o'clock, P. M. Since last report he has had two hours' sleep, to which, for the last four days, he had been an utter stranger. During sleep he was free from every kind of spasm, but on his awaking they recurred with redoubled vigour. The abdominal muscles are now contracted; the jaw is more locked; countenance strongly characteristic of tetanus; pulse very quick and weak. Repeat medicine and stimulants.

31st. Tetanic spasms, during which the opisthotonos is much increased, now occur frequently. These do not affect the muscles of the injured limb, the spasms of which are still clonic, and between each of which there is hardly a quarter of a minute's interval. Perspiration profuse. He states that the only relief he receives is after taking a large quantity of punch. There is a copious discharge from the sore, which is now rather of an unhealthy character. Repeat the treatment.

9 o'clock, P. M. Though for some time back the muscles of the left limb participate in the tonic spasm, the spasms of the right limb retain their clonic character; they have become, however, diminished in energy. Thirty drops of the tincture of Indian hemp ordered to be taken every fourth hour.

November 1st, 9 o'clock, A. M. General tetanic spasms are now very frequent; the spasms of the fractured limb are merging into the tonic condition. Opisthotonos is increased. The state of the patient is truly deplorable; he cries vociferously for relief from his sufferings.

At 2 o'clock a consultation was held, and amputation was unanimously decided against. He was ordered a drachm of laudanum every hour. A strong infusion of belladonna to be applied to the wound.

9 o'clock, P. M. He appears to be under the influence of opium. There has been no spasm since 7 o'clock; the muscles are all relaxed; respiration laborious; pulse almost imperceptible; pupils contracted to the size of a pin's head. He is quite unconscious. Occasionally spasmodic twitchings of the muscles of the upper extremities are observed. Omit opium. He experienced, for the first time, difficulty in swallowing in the course of this day. He died at 11 o'clock.

Upon examining the fractured bones the fibular nerve was found tightly strung under the upper fragment of the fibula.

Though in compound fractures we have no reason to be alarmed by the occurrence of local spasms at an early period,

which as a necessary consequence are very common, still this case teaches us to be apprehensive of the results, whenever, supervening some days after the injury, they continue beyond twenty-four hours, and increase in violence, notwithstanding the adoption of treatment calculated to allay them. In fact, though the tonic and clonic spasms are different in kind, the present case proves that the presence of the latter denotes the existence of a condition which can give origin to the former, and that the co-existence of these two kinds of spasm is not incompatible. Not until the tetanic symptoms had reached their height did the muscles originally affected with clonic spasm assume tonic rigidity, which prevailed through all the other muscles. The healthy condition of the wound at the time of the occurrence of tetanic symptoms in this case is favourable to the opinion entertained by those who contend that there is no necessary connexion between the state of the wound and the disease. Sleep is so seldom procured in tetanus we have rarely an opportunity to test the validity of what has been asserted, namely, that the muscular fibre parts with its tonic contraction during the somnolent state; this case, however, would appear to corroborate that statement. Although previously to death this patient appeared to be under the narcotic influence of opium, which as a *dernier resort* was administered in such large amount, it is difficult to determine whether the entire condition was due to the effect of the drug, or if part was the consequence of that change, which, in the natural course of the disease, frequently precedes dissolution. The condition of the nerve in the fractured limb clearly reveals, not only the cause of the primary local spasms, but also that of the tetanus. The advocates for amputation in traumatic tetanus would hold up this as a good case in favour of their arguments for the operation; but it will be seen hereafter, that once irritation of a nerve has produced the least approximation to the tetanic state, removal of the irritating cause does not in

the least check its progress: the conditions for the maintenance of the disease have been already laid in the spinal cord.

The foregoing cases prove that the division of tetanus into idiopathic and traumatic, and the subdivision into acute and chronic, are no arbitrary arrangements; and to a proper mode of treatment, especially to a correct prognosis, due consideration of these divisions is essentially necessary. For, *cæteris paribus*, we may generally infer (irrespectively of symptoms) a favourable issue in cases of idiopathic, and of chronic traumatic tetanus, while in the acute traumatic form the most unfavourable prediction is unfortunately very rarely proved to be erroneous. The chronicity, and consequently the mildness of a case of tetanus, is generally in proportion to the length of interval from the application of the exciting cause to the development of the disease; the reverse obtains with respect to the acuteness of the disease. The average number of days which constitutes this interval is, in acute cases, from four to fourteen,—eight or ten days is, I think, the usual period; and from fourteen days to a month in chronic cases. The few singularly rapid cases of tetanus occurring immediately upon receipt of an injury, which have been recorded, are, I feel confident, not genuine forms of the disease. It has been stated that the first indication of tetanus manifested, is a slight difficulty in swallowing. This symptom is, however, sometimes absent all through the disease, as in the case of Monks; and when present at the commencement, which it usually is, may cause deception. A much more uniform token of the impending evil, and one which, I think, occurs before every other, is to be seen in a peculiar expression of countenance. A change (very different from that palpably apparent, and more easily describable, expression which occurs in the course of the disease), of which no description can convey a perfect idea, but which, once observed, cannot fail to be again recognised, is the sure and unerring harbinger of this dreadful malady. Generally the vo-

luntary muscles first affected in tetanus are those at the back of the neck, then the dorsal, and next the abdominal. This order is, however, subject to variation; sometimes it would appear to be reversed. The pain at the ensiform cartilage, which has been looked upon by some as a pathognomonic symptom, is frequently absent, and is not essential to the disease. There is not a disease about whose pathological condition so much discrepancy of opinion prevails, as about tetanus. A spastic rigidity of some of the voluntary muscles being generally found an accompaniment of spinal meningitis, with effusion upon the cord, and either this state of congestion, or hyperæmia of the cord and its membranes, being sometimes found in cases of fatal tetanus, have led a crowd of pathologists to refer the disease to one or other of these conditions. That not one of these conditions, especially inflammation, is the proximate cause of tetanus, will, I think, be proved by the following arguments. In numberless instances autopsical examinations reveal no appreciable lesion of the spinal cord or its membranes. Indeed, so much more frequently is any sign of pre-existing disease in these parts absent than present, that, from this circumstance alone, we would be rather justified in viewing congestion or hyperæmia, which are found more frequently present than inflammatory traces, as effects of the disease, incidental concomitants, or merely hypostatic occurrences, than as holding the relation of cause to the tetanic symptoms. These states of the parts within the vertebral canal may, however, act as remote or exciting causes of tetanus, but much more frequently, I think, they are effects of the disease. We know intense cerebral excitement will often induce congestion of the brain, which may even lead to inflammation; from analogy, therefore, we might rationally conclude that excessive functional exercise of the spinal cord would be productive of similar effects. Again, if inflammation in or about the medulla spinalis was the essential cause of tetanus, the violence of the symptoms ought to bear a relation to its degree; but such is not the case.

In cerebro-spinal arachnitis (which will be seen, by the able paper of Dr. Mayne, in the third Number of this Journal, to be characterized by extensive subarachnoid effusion of lymph along the entire course of the spinal cord) the symptoms peculiar to tetanus are not present. In several cases of this cerebro-spinal disease which occurred in Steevens's Hospital during the year 1846, there was seldom observed any approach to tetanus beyond rigidity of the muscles at the back of the neck, and cervical curvature backwards. In a few instances, in which convulsions occurred at the onset of the complaint, the spasms of the muscles were of the clonic character. Besides, in many of the cases which presented the least degree of tetanic complication, *post mortem* examination disclosed the most considerable marks of inflammation and its results in the spinal arachnoid membrane, with effusion of lymph from the base of the brain to the cauda equina.

In addition to these facts it is impossible to understand how, if inflammation in or about the cord be an essential condition for the development of tetanus, that an injury of a remote part could produce it; for the opinion that inflammation travels from the part, along the course of the nerves, to the cord, appears a mere gratuitous assumption, which is disproved by the fact that a wound is often healed completely long before the least indication of the disease becomes manifest. Seeing, then, that we have sufficient evidence to prove that no lesion within the vertebral canal, cognisable by the senses, holds a necessary relation to tetanus, we must seek its cause through the medium of physiology. The fact that some of the inferior animals, when decapitated, exhibit reflex phenomena in a much more marked manner than when otherwise killed, proves that the spinal cord possesses an apparatus for the generation of motive power, quite independently of the brain. To Dr. Marshall Hall is due the credit of having first pointed out, that to the existence of such an apparatus was attributable the production of centrifugal motions by centripetal impressions on

the periphery of nerves, and of having shown that certain acts, ingestion and egestion, &c. &c., and the preservation of muscular tonicity, depend upon the exercise of the function of this part. He styles this portion of the medulla spinalis the excito-motory system, or true spinal cord, in contradistinction to that portion of it which is entirely subsidiary to the brain, and whose office is to convey to it sensitive impressions, and to carry from it the mandates of volition.

Mr. Grainger and Dr. Carpenter have done much to establish the theory of the reflex function, and have succeeded in greatly simplifying it. Now all circumstances conspire to prove that irritation in the excito-motory system is the necessary cause of tetanus; the functional excitement of it, which is the result, giving rise to augmentation of motor influence; so that the very essence of the disease appears to consist in a superabundance of that force which, in the healthy state, the spinal cord only generates in very small amount. The causes which act on the excito-motory system, so as to produce this irritation, are many and various. Dr. Hall makes a division of tetanus according as the exciting causes act directly or indirectly on the cord. He styles centric the tetanus which arises from direct causes, as injuries, diseases, and inflammation of the cord or its membranes; while that produced by impressions on the extremities of nerves he calls eccentric. Under the latter head may be classed tetanus which arises from the sudden application of cold to the surface of the body, the traumatic, and sympathetic forms.

It is the eccentric tetanus which illustrates so well the connexion between the disease and the reflex function. Here impressions of incident or excitor nerves are conveyed to the true spinal cord, where they become reflected on the motor nerves, and thus produce those violent muscular contractions of voluntary muscles which the most powerful effort of the will cannot control. A little reflection will, I think, suggest that for the production of tetanus by the usual exciting causes some

predisposition in the system is necessary. For every individual is not subject to this disease upon application of the exciting causes, which have no uniform relation to it either in kind or degree; sometimes they are most trifling: nor is the same individual at all times equally prone to its occurrence. What this tendency is the present state of our knowledge leaves quite beyond our comprehension. Vermination, long continued exposure to cold and wet, frequent changes of temperature, are laid down as predisposing causes of tetanus; more frequently, I think, they are co-operative. Equally incomprehensible with predisposition is the nature of the change which occurs in the system during the interval from the impression to the disease, in traumatic cases of tetanus; and whether the impression lies latent in the extremities of the nerves or in the spinal cord, the present state of our information does not enable us to decide. Were we able to solve this difficulty, a matter of much practical moment would be gained. If the theory of tetanus, which the arguments adduced tend to establish, be correct, the obvious indication in its treatment is to allay the irritability of the excito-motory system, with a view to diminish the excessive amount of motor power. Unfortunately, we have not as yet an agent which will effectually accomplish this end. It is not surprising that practitioners, seeing the efficacy of opium in allaying some forms of spasm, should have thought they had in this drug every qualification for the cure of tetanus. Consequently, having found moderate—even large—doses of the drug almost nugatory, they pushed its administration to such an extravagant amount, that the stomach was frequently unable to reduce one-third of it(*a*). Still this invincible disease (at least in its acute forms) could not be made to succumb. They forgot, however, that narcotics act on the spinal cord as well as on the brain; and that, while on the latter they exercised a sedative influence, they might on the former act

(*a*) See Abernethy's Lectures.

as irritants. That this remark is applicable to opium is proved by physiological experiment on some of the inferior animals. Müller found that frogs, in a state of narcotization from opium, exhibited reflex phenomena in a greatly augmented degree; the gentlest touch on the surface being sufficient to throw the whole body into the most violent tetanic spasms. It may be argued that the excito-motory system in these animals is much more irritable than that in man; and that it is unfair to infer anything relating to the human subject from what we see to occur in the lower animals; besides that cases of poisoning by opium in man do not present convulsions or reflex phenomena. But it should be remembered that in tetanus the excito-motory system of man is more than in the condition of that of the lower animals, as regards irritability; and that though, generally, opium proves fatal in the human subject without any evidences of irritation in the spinal cord, there are cases recorded by toxicologists in which most violent tetanic spasms preceded death, where very large doses of the drug had been taken. In a state of health a dose of opium capable of producing fatal coma might generally be insufficient to excite the spinal cord, but where excessive irritability of it exists, as is the case in tetanus, this medicine could not fail further to exalt it. Experience, too, corroborates the inefficiency of opium to overcome tetanus. Its failure in this disease does not seem to depend upon the difficulty there is experienced to procure its specific effect upon the brain, for in many cases this does occur, without the least improvement in the tetanic symptoms being observable. My father relates a case in which apoplexy occurred from the use of opium in tetanus, and still the disease was in no way influenced. It has been stated that the brain exercises a controlling influence over the excito-motory system; if this be the case, opium, whose effect is to lull cerebral action, must be inadmissible in tetanus. This is, however, too theoretical an objection against opium to be worthy of much consideration. As, then, we have a physiological contra-

indication to the employment of opium in tetanus, and practical experience of its inefficiency, we have no reason to place that implicit reliance in this medicine that some have done. Until, however, our views of the pathology of the nervous system become more extended, and that we are more successful in the treatment of tetanus by other means, I do not think we would be justified in discarding altogether this potent drug. Dr. Hall states that hydrocyanic acid has the power of depressing the action of the true spinal cord; if so, it is the medicine best suited for tetanus, but I am not aware that its employment has been attended with any particular success. Tobacco, from its remarkable property of producing relaxation, would appear a most appropriate agent in tetanus; one case of cure by it is recorded by Dr. O'Beirne in the third volume of the Dublin Hospital Reports. How far, however, an agent which, in order to produce the necessary impression, causes extreme prostration, amounting often to syncope, and to produce its permanent beneficial effects requires constant repetition, is admissible in tetanus, a disease marked with such exhaustion of the vital powers, is, I think, very questionable. Etherization, or asthenæsia by chloroform, seem to be measures well calculated to overcome tetanic convulsion, but as yet we have had little experience of their effects in this way; and it would appear from some circumstances that the influence of ether on the nervous system does not extend to the excito-motory system. We would suppose that belladonna was capable of exerting manifest power of allaying tetanic spasm, but it did not appear to act so in the case of Monks. The very active agent, aconite, has been employed in tetanus, and cases of recovery from its use have been recorded; but all those that I have read have been mild forms of the disease. The Indian hemp has been greatly extolled in the treatment of tetanus, as well as in other nervous diseases; considerable success appears in some instances to have attended its exhibi-

tion in India, but the records of cases in this country do not entitle it to much merit as an efficient agent. Strychnine has been suggested, on the paradoxical principle, "*similia similibus curaniur.*" Now, though this is a perfectly legitimate principle, and one which is fully recognised in practice,—for instance, the injection into the urethra of strong solutions of nitrate of silver in the commencement of acute gonorrhœa,—its observance in the treatment of tetanus involves, I think, a fatal contradiction. For exhaustion, which is the necessary consequence of the expenditure of force, by the violent muscular contractions which occur in tetanus, is most to be dreaded; we give stimulants in large quantity to obviate it; whatever, therefore, reinforces the disease, must in proportion increase the depression, and is, therefore, highly objectionable.

Next to opium, no medicine, perhaps, has been more uniformly employed in tetanus than mercury, but as to its utility much contrariety of opinion exists. Mercury, whose therapeutic action on the system is so very extensive, and its power to control and modify diseased action generally so very marked, is an agent which would appear to be particularly adapted to the circumstances of so irresistible a disease as tetanus. However, it fails palpably in acute traumatic cases of tetanus, and on the chronic it does not seem to make any very decided impression. If we have recourse to mercury in this disease we cannot employ it too energetically, or too soon after the first evidence of the disease is given, and in conjunction with stimulants it forms the plan of treatment, perhaps, most likely to avail. The easiest and least annoying means of bringing the system under the influence of mercury (which in tetanus is most difficult), is by fumigation, and the mercurial sheet.

Blood-letting is a remedy with those who consider that inflammation of the spinal cord or its membranes is a necessary pathological condition in tetanus. Enough has been said to prove that no such condition is necessarily present; we have,

therefore, no reason on these grounds to bleed in tetanus, and a strong objection to it is, that it diminishes the strength of the patient.

Cold affusion, though said to be productive of beneficial effects in some tetanic cases in tropical climates, must generally be attended by much danger, in consequence of the extreme prostration it sometimes causes. The value of the vapour-bath has been attested by its decided utility in a few cases recorded by Sir Henry Marsh in the fourth volume of the Dublin Hospital Reports; and in a case of very severe acute traumatic tetanus, which occurred in Steevens's Hospital under Mr. Cusack, about three years ago, though the patient did not recover, he experienced so much comparative ease and comfort from a vapour-bath, that he was quite reluctant to leave it. The spasms appeared to be diminished in severity by it, though not rendered less frequent.

Of all elements in the treatment of tetanus, stimulants, with strong nutriment, are the most essential; without them, the best directed efforts in all forms of the disease would be unavailing; for, unsupported, the vital powers cannot maintain themselves under the enormous expenditure of force by the repeated violent paroxysms which are observed in some cases. I feel assured that, but for the liberal supply of wine prescribed by Mr. Cusack for the boy William Browne, ere the disease had reached its *acmè* of severity, it would have become triumphant over the vital powers. Some practitioners lay much stress upon topical treatment to the spine. The application of leeches along its course, with a view to the removal of any congestion, hyperæmia, or inflammation, which may be within, appears a useful measure; but its benefit in this way hardly counterbalances the ill-effects that accrue from the necessary disturbance of the patient. Blistering would seem to be preferable, or, better still, the actual cautery, which should be passed quickly and lightly along the course of the vertebræ.

The treatment of the wound in cases of traumatic tetanus

is a subject upon which there is no small degree of difference of opinion. The removal of the part the seat of the injury naturally appears the most rational line of proceeding, and amputation has consequently been suggested, and has had firm advocates. Experience, however, disproves the utility of this practice, which, upon physiological grounds, is unnecessary. It is found that irritation of a nerve, being transmitted to the spinal cord, produces irritation in it, but that removal of the original exciting cause does not in the least diminish the flame which has been kindled. Besides, where a predisposition to tetanus appears to exist in the system, and to be a necessary condition to render the exciting causes effectual, we have no pledge why any operation, no matter how trifling, would not be as substantial a cause of the disease as any other species of wound. Tetanus is a frequent consequence of amputations. Division of nerves, ligatures upon them, &c., are measures all open to the same objections as amputation. Division of a nerve may, however, I think, under one circumstance, be justifiable, that is, where we have proof that the nerve is so positioned that it must be exposed to excessive irritation, as by a bony spicula: here, if we cannot remove the irritating cause, if, in any part of its course, the nerve is accessible, we might divide it. To give the patient, however, a fair chance, this must be done at an early period after the injury, before, in fact, the arrival of the minimum period of time at which tetanus is observed to supervene.

The points of most importance in the above observations may be briefly summed up in the following propositions:

1st. That tetanus depends on irritation, directly or indirectly, of the excito-motory system, or true spinal cord, by which it becomes surcharged with motor influence; and that inflammation in or about the cord, or any appreciable lesion, is not an essential condition for the development of the disease.

2nd. That, while we have ample evidence, physiological

and practical, that opium is ill-calculated to fulfil the indication in tetanus, namely, to diminish the excitability of the true spinal cord, until our views become improved, and the knowledge of an anti-tetanic agent ceases to be a *desideratum*, we are not justified in discarding altogether this drug.

3rd. That our grand object in the treatment of tetanus should be, to support the patient's strength by the administration of stimulants and strong nourishment, with a view, as it were, to compensate the vital powers for their great exhaustion consequent upon the expenditure of force by the violent muscular contractions, which in some cases are excessive.

4th. That as the removal of the exciting cause, once the first evidence that irritation has been propagated to the spinal cord becomes manifest, does not in the least degree check the progress of tetanus, or abate the violence of its symptoms, all operations, in traumatic cases, are generally not only unnecessary but injurious.

Art. II.—*An Essay on the Diagnosis and Treatment of Eruptive Diseases of the Scalp.* By J. Moore Neligan, M. D., M. R. I. A., Physician to Jervis-street Hospital, Lecturer on the Practice of Medicine in the Dublin School of Medicine, &c.

Much difficulty, both as regards diagnosis and treatment, has always existed with respect to eruptive diseases, when situated on the scalp. By most writers on diseases of the skin, they have been described without reference to their situation, being classed with eruptions occurring on other parts of the body. This I believe to be a principal reason for the obscurity which still envelopes this class of skin diseases; for the peculiar anatomical structure of the scalp, and the presence of the hair, cause a marked dissimilarity in the appearance, and a still greater difference in the treatment, of the same class and order of eruptions (so far as regards any artificial arrangement of

diseases of the skin), seated here and on other portions of the cuticular surface.

It is somewhat singular that diseases so very common should, in this advanced age of medical science, require any further elucidation;—diseases, too, which demand for their investigation the employment of but one organ of sense, that of sight; while most other affections which the physician has to diagnose require the application of much less educated senses, the hearing and the touch; and the knowledge thus derived has to be further subjected to the process of analytic reasoning.

The slight interest which this class of diseases appears to have at all times excited amongst the members of the medical profession, is, I think, to be ascribed chiefly to two causes: first, the fact of their existence not endangering life, their presence being, indeed, in many cases, not incompatible with excellent health; and secondly, the tediousness, the obstinacy, with which they are said to resist the most active treatment. To the former cause I can object nothing; for although one form of eruption of the scalp, when long existing, produces or is connected with a certain amount of mental imbecility, as I shall by and by show, I have never yet heard or known of life being shortened by its presence. Nevertheless, the loathsome character of these affections, the annoyance which they occasion to the patient—almost invariably a child or young person, and his family—and the difficulty, or even danger, which attends their cure when they become chronic, renders them, I think, as deserving of careful investigation as many other affections of a more serious character to which the human frame is subject.

The second cause, their tediousness, instead of being a reason for their neglect,—as I believe it to be the chief,—should stimulate inquiry, with the view of ascertaining the precise plan of treatment best adapted for each form, or of devising remedial measures by which their naturally obstinate character

may be overcome. To this very tediousness of character, which many diseases present, may be, in a great degree, ascribed the existence of the empiric: the patient, tired by the long existence of a malady which appears to him to baffle the physician's skill, seeks for aid from any quarter promising relief; and the physician, impatient for the result of a case, is too often apt to have recourse to empirical plans of treatment, throwing aside those which experience should have shown him were still worthy of further trial. In no class of diseases is this so true as in those affections which I am about to describe. Much has been done of late years for their diagnosis, but little for their treatment. The numerous remedial measures proposed are nearly all empirical, the stage of the disease, or the constitution of the patient, being but seldom taken into account; and as a necessary consequence, *eruptive diseases of the scalp afford a fair domain to the quack.*

My object, then, in the following essay, is to direct attention to eruptions occurring on the scalp, as a special class of diseases,—bearing a close resemblance to cutaneous eruptions of other parts of the body, so close as to justify for their designation the same generic names, yet sufficiently distinct to require for their diagnosis, and especially for their successful treatment, a specific description. The observations which I venture to lay before the profession are based on my personal experience in the wards of Jervis-street Hospital, in the large dispensary attached to that institution, and on the results of cases in private practice. I shall not enter into a detailed account of the history of this class of cutaneous diseases, nor of the authors who have written on the subject, unless so far as may be requisite to elucidate my own remarks.

The different varieties of eruptions which occur on the scalp are, with one exception, of a decidedly inflammatory character in their early stage. They are, therefore, naturally divisible into two groups, *inflammatory* and *non-inflammatory.* This division is, I think, especially valuable as an indication

of the principles which should be our guide in treatment; for although the inflammatory affections do, like inflammations occurring in every other part of the human frame, become chronic, and then lose much of their inflammatory character, it must be always borne in mind that they do not bear a stimulating plan of treatment, even in their most chronic stage, so freely as the disease which constitutes the second division; and that in no instance is the application of stimulants indicated in their early stage. This arrangement thus at once lays the foundation of a rational, in contradistinction to an empirical, plan of treating these affections.

The generic names which I employ are those to be found in Willan's Classification of Diseases of the Skin. They indicate with sufficient accuracy the distinctive characters of the eruptions, and by their adoption we insure simplicity in nomenclature, and avoid the confusion which arises from proposing new names for diseases. I use but one specific appellation for each genus, and this has reference to the seat of the affection, as distinguishing it from a similar eruption occurring on other parts of the body.

The classification which I propose may be arranged as follows:—

Eruptive Diseases of the Scalp.

Inflammatory.	Non-Inflammatory.
Herpes capitis.	Porrigo capitis.
Eczema capitis.	
Impetigo capitis.	
Pityriasis capitis.	

It will be seen that I exclude from this arrangement some diseases of the skin which are ordinarily described as occurring on the scalp. My reason for doing so is, that psoriasis, lepra, and ecthyma, the other eruptions which occur in this situation, are very rarely met with there, unless in connexion with their existence on the skin generally; and their presence on the scalp not requiring any special plan of treatment, they cannot

be looked upon as diseases peculiar to this portion of the cuticular surface.

By a still further analysis of this class of skin diseases, we find that the two first-named belong to the order *vesicles*, the third to *pustules*, the fourth to *scaly diseases*, and the fifth to *vegetable growths*.

I shall now proceed to describe individually each of the forms which constitute the first group, and then speak of their treatment collectively.

Herpes capitis.—The variety of herpes which is met with on the scalp differs somewhat in its characters from any species of that disease which occurs on other parts of the body. It bears most resemblance to *herpes circinnatus*, but differs from it in the very trifling development of the vesicles which appear at the commencement of the eruption, and in their assuming almost immediately the characters of a scaly disease. They thus agree with the description given by Cazenave, in his *Leçons sur les Maladies de la Peau*, of a variety of herpes which he proposes to term *herpes squamosus*, but which, when it occurs on the scalp, he names *herpes tonsurans*. By careful examination, however, the vesicular character of the eruption, and its course, are sufficiently well marked to authorize its being classed as a species of herpes.

Herpes capitis usually attacks children from the age of 3 to 12. It is very rare in early infancy, and I have never met with it after the age of puberty, except in one instance, in which it had commenced at the age of 13, and had lasted for over five years before I saw the case. It is but rarely witnessed in its first stage,—that of vesicle,—as it then produces but little annoyance, and advice is, consequently, not sought for until it becomes more developed. When seen, however, at its commencement, it presents the appearance of a small ring of minute vesicles, not more than an eighth of an inch in diameter, without any redness or other mark of inflam-

mation beyond a slight tingling,—not itching. These vesicles are attended with scarcely any discharge, soon drying up and desquamating; but as they dry up in the centre they spread from the circumference, and the diseased spots, in the course of a few days, attain the size of a shilling.

If we examine them in this stage, we find that the centre, the part where the eruption first appeared, is thickened, elevated above the surface of the surrounding scalp, and covered with fine scales, which are renewed rapidly on being removed. As the disease proceeds, the patches extend from their periphery, still retaining a perfectly circular shape, and, finally, after some weeks, attain the size of a crown-piece, which I have rarely seen them exceed, no matter how chronic the case may have been. Having attained this size, and ceased to spread, the entire of the diseased surface is thickened, elevated, and covered with fine, soft scales, which the least touch removes. Sometimes but one patch of herpes is found on the scalp, but more generally there are three, four, or more circles, distinct, and at some distance from each other: this, the advanced stage of the disease, is usually attended with much itching.

As the disease advances the hair assumes a very peculiar appearance, almost pathognomonic of this form of eruption of the scalp. In the early stage each hair appears to be slightly bent on itself, and turned against the grain, obstinately refusing to lie smooth; the roots are also somewhat matted together by the scaly crusts of the eruption. After some time it presents a diseased appearance, being twisted, broken, of a whitish colour, and readily falling out; so that bald patches begin to appear, over which are scattered small bundles of the altered hair, which has been described, not inaptly, as resembling tow. This condition of the hair has induced some writers to describe this affection as a disease not of the scalp, but of the hair itself. Thus Mr. Erasmus Wilson, one of the most recent English authors on diseases of the skin, has named it *trichonosis* (from θρὶξ, *capillus*, and νοσος, *morbus*) *furfuracea*.

The eruption does not in all cases assume the exact characters I have now described. In the early stage—when, however, it is rarely witnessed by the medical practitioner—its appearance always agrees with the description I have given, except that in some cases there is more inflammation than in others; but in the advanced stages it varies much, both as regards the amount of desquamation and the appearance of the elevated patches: it is this fact which has led to so much confusion in the diagnosis and nomenclature of the disease. Yet in the most chronic or complicated cases, the circular form of the eruption, and the peculiar condition of the hair, render its diagnosis easy to even the tolerably experienced eye.

Herpes capitis *is the true ring-worm of the scalp.*

The contagious nature of this eruption has been doubted by some, but I have seen too many instances of its direct communication from child to child, of *different* families, in which the argument of similarity of constitution and of dietetic arrangements could not avail, to have any doubt on the subject; and I look upon the contagiousness of ring-worm of the scalp as distinctly proven as that of small-pox. I do not mean to say that in the very young infant or the adult the disease will be produced by contact, for at either age it is but very rarely seen, as I have already remarked: but that contagion will give rise to it in children of the age at which it is likely to occur, and also, as in other contagious affections, that some individuals are more predisposed or more prone to its attacks than others. I need scarcely refer to the experience of most physicians as to the spread of this eruption in institutions where the youth of either sex are congregated together, or to the proofs we so frequently meet with, in private practice, of its propagation by contagion from wearing the cap or using the hair-brush of a child affected with the disease. I could relate many instances of both which occurred within my own knowledge, but prefer citing the following remarkable example from M. Cazenave.

"The 29th of April, 1840, I was sent for by the president

of a college at Paris, to see, with the physician and surgeon of the establishment, a number of children affected with an eruption of the hairy scalp. I was informed by them that about the same period of the year before, six or eight children of one of the lesser colleges had been attacked with an eruption similar to that which I had now been sent for to see; that there had not been the least appearance of the disease until the arrival of a young pupil who laboured under the affection previously to his admission; they also remarked that the companions ('*voisins*') of this boy were the first affected; and, in fine, that the eruption was limited to the boys of the lesser college, with a single exception, which occurred in a brother of one of the boys affected, but who was an inmate of another college."(*a*)

Herpes capitis does not cause baldness; the altered hair falls off the diseased patches, which, when the scales disappear in the progress of cure, are thus left in a bald state; but the hair eventually grows on them again, thereby constituting an essential difference between this affection and alopecia. The disease, unless when seen and properly treated in its early stages, soon becomes chronic and obstinate, and loses its inflammatory character.

Eczema capitis.—This, like herpes, is a vesicular eruption; but it soon loses this character, and in its various stages presents so much diversity of appearance that its diagnosis is not always unattended with difficulty: in one of its forms it bears so close a resemblance to impetigo, the eruption next to be described, that by most authors a species has been recognised which they term eczema impetigonoides. With the object, however, of attaining simplicity by avoiding numerous subdivisions, I have thought it better to describe the different forms of the disease under one specific denomination.

(*a*) *Leçons sur les Maladies de la Peau.* 1846. Folio, p. 47.

The eruption of eczema on the scalp is preceded by heat, tingling, and itching, which are rapidly followed by the appearance of minute vesicles, crowded together in irregular-shaped patches, or scattered over a large surface. The interspaces between the vesicles and the whole of the scalp on which they are seated is red and inflamed; in most cases the vesicles are so minute as to be scarcely recognisable, or at least are not seen by the physician until they have burst and given exit to a copious exudation of a serous fluid by which the roots of the hair are accreted together. In the acute forms of the disease this serous exudation continues for a long time, and is a most troublesome symptom; but in the chronic forms—and some cases assume a chronic character almost from the first—it rapidly dries into furfuraceous scales, which are pushed forwards by the hairs as they grow.

The vesicles of eczema usually first appear behind the ear, close to the edge of the hairy scalp, from whence the disease spreads rapidly, very generally attacking the ear itself; in some cases the entire of the scalp will be covered with the eruption in a week or ten days, but in others the disease spreads very slowly.

With the progress of the affection, the appearance of the diseased surface varies much; sometimes it is scarcely, if at all, elevated above the healthy parts, and is only to be recognised by the watery exudation which keeps the hairs in a constantly moist state. In other cases the scalp is raw or excoriated, and secretes a thin, whitish pus, which dries into greyish brown scabs, presenting cracks or fissures, through which the inflamed surface is seen. In a third form of the disease the serous exudation dries rapidly into extremely thin membranaceous scales, which are readily removable by the slightest friction, but cause much itching; and a fourth variety is characterized by a repeated eruption of minute patches of vesicles—the patches rarely exceeding the size of a small bean—all over the scalp, which pass through the stages of eczema as witnessed on

other parts of the cuticular surface, and disappear in seven or eight days, but to be rapidly succeeded by a fresh outbreak of the disease.

The hair in eczema, no matter how long the disease may have existed, remains unaltered. When in the acute forms, attended with much inflammation, ulceration of the scalp occurs, the hair, of course, falls off, but in the progress of cure it grows again in a perfectly healthy state, except that in individuals past the age of puberty the new growth of hair is often grey.

Eczema capitis is not a contagious disease; its cause (and this is also true of the other eruptions which occur on the scalp) cannot be satisfactorily accounted for. They appear on the scrofulous and on the non-scrofulous child, on the healthy and on the delicate, on the ill-fed, ill-housed, deficiently clothed children of the poor, and on the highly-nurtured, well-housed, warmly-clad children of the rich; in short, the only cause we can plausibly assign for their outbreak is that scarcely understood one, *constitutional*. We know that in many families a peculiar predisposition to diseases of the skin exists, and this predisposition appears to be hereditary; the same is true of eruptions of the scalp. Their duration is undoubtedly promoted, though their first appearance is not satisfactorily proven to be caused, by want of cleanliness.

Impetigo capitis is a pustular disease; and the only one of this class which is met with on the scalp. Its occurrence in children is preceded, for a few days, by feverish symptoms, frequently attended with vomiting; the surface of the scalp is hot and painful, and the part about to be affected presents an erythematous blush. The eruption makes its appearance either in distinct pustules of a *psydracious* character, scattered over the head, or in groups thickly set on an inflamed base. In the former case each pustule is about the size of a small pea, both in circumference and elevation; and is attended with but little surrounding inflammation. On the second day of their

appearance, each pustule contains thick yellow matter at the summit, but it is soon matured, when it bursts, and gives exit to the contained pus, which rapidly dries into a greenish-yellow scab. This form of impetigo,—the impetigo sparsa of most writers,—rarely assumes a chronic character, when it has lasted for any time its continuance being kept up by an eruption of fresh pustules on other parts of the scalp; but it most generally passes into the second form.

The second form of the disease is, as I have said, characterized by the eruption occurring in groups of pustules; but the individual pustules also are different in character, being of the variety which have been termed *achores*. Their appearance is attended with more decided symptoms of inflammation, both general and local, and the heat and itching is in many cases so severe that children tear the scalp and prevent the disease from presenting the truly pustular character of the first stage. The eruption usually commences on the forehead, involving at the same time some of the hairy scalp; the inflamed patches vary in size and form in different cases; in some extending in their longest measurement not more than from half an inch to one or two inches, while in others the greater part of the scalp is involved from the very commencement: in nearly every instance the skin bordering on the scalp is more or less engaged in the disease, and it often appears at the same time on the ears or on some part of the face. The pustules are not so large as when they occur singly; their coats are apparently thinner, and the pus which they contain is not so consistent, and is of a richer yellow colour. They usually become confluent before they burst, and the resulting greenish-yellow (when chronic, greenish-brown) scab is consequently much more extensive. When the eruption has continued for any length of time, large quantities of bright yellow pus are secreted beneath the greenish crusts, which separate in cracks to give exit to the matter, exhibiting beneath the highly inflamed raw surface of the scalp from which the pus is secreted.

In either form of impetigo the hair is unaltered; it is usually matted together by the purulent secretion and the scabs, but it does not fall off or become changed in appearance even in the most chronic cases.

Impetigo capitis is not a contagious disease; it is met with at all ages, but most generally in early infancy, lasting for several years if not properly treated; it very rarely appears for the first time after the age of 9 or 10, but I have seen two instances in which the eruption occurred in advanced life: in both the disease was of the form first described.

In the chronic stage of this eruption of the scalp small abscesses very frequently form at the nape of the neck, close to the roots of the hair; and some of the chain of lymphatic glands, which lies behind the sterno-mastoid muscle, become enlarged, swollen, and tender, but they very rarely suppurate.

Pityriasis capitis is a squamous disease; though I have placed it amongst the inflammatory affections of the scalp, the inflammation with which it is attended is, from the first, of a chronic character; it would indeed seem to form an intermediate division between the inflammatory and non-inflammatory eruptions of this part of the dermis. Its appearance is not accompanied by any sign of constitutional or local disturbance, but soon after its eruption on the scalp it gives rise to much itching, without heat or redness of the surface. The disease consists in the secretion of numerous minute, papyraceous, dry scales, in most cases scattered over the entire of the head, without any sensible elevation of the surface, and perfectly free from moisture. I cannot describe the precise manner in which this eruption originates, as I have never seen it until the squamous secretion was fully developed, there being no symptoms to direct the patient's attention to it until then. The presence of the scales produces much itching, compelling the individual affected to scratch the head, by which the scales are readily detached in large quantity, in the state of a fine

powder or *dandriff;* their removal is rapidly succeeded by a further secretion.

If we examine the condition of the scalp in pityriasis capitis, the surface is found to be closely covered with the imbricated scales, with small intervals here and there; the skin of the unaffected parts presenting a smoother or more polished appearance than natural. On removing one of the scales we find that the spot on which it is seated is soft, and that another finer scale may be removed from it; and it is not until after the removal of several scales, each finer than the preceding, that we arrive at the reddened and inflamed surface of the scalp, which is somewhat depressed.

The chief annoyance which this eruption of the scalp causes is itching; the patient, in scratching himself to allay it, removes large quantities of dandriff; and in the child the irritation is often so great that the scalp is torn, becomes inflamed, eczematous vesicles appear, and the original affection becomes complicated with the latter disease.

Pityriasis is most commonly met with in infants at the breast, the frequency of its appearance decreasing with the advance of years towards puberty, at which age it is very rarely met with, but it again appears at the approach of old age. It thus seems to be most frequent when the head is least covered with hair, and it is also most generally seen in individuals whose hair is naturally thin. Were we to reason on this fact with reference to the causation of this form of eruption on the scalp, we might reasonably conclude that the scaly secretion was an effort of Nature to protect that portion of the surface when its proper covering was deficient in quantity.

In pityriasis capitis the hair remains unaltered.

The differential diagnosis of the four inflammatory eruptions of the scalp will, I think, be rendered most simple by an arrangement of their essential characters in the following tabular form:

HERPES CAPITIS.	ECZEMA CAPITIS.	IMPETIGO CAPITIS.	PITYRIASIS CAPITIS.
A vesicular eruption.	A vesicular eruption.	A pustular eruption.	A scaly eruption.
Appears in circular patches.	In irregularly-shaped patches, or scattered over a large surface of the scalp.	Diffused in single pustules, or in closely aggregated confluent masses.	Scattered over the entire of the scalp.
Preceding or accompanying inflammation always slight.	Preceding or accompanying inflammation moderate; rarely very active.	Preceding and accompanying inflammation generally active.	No attendant inflammation, unless it be produced by some irritating cause; slight inflammation usually precedes the eruption.
Discharge serous, small in quantity, lasting only for a few days.	Discharge, in one form, at first serous, afterwards sero-purulent, very copious; in the other form, trifling, but more copious and lasts longer than in herpes.	Discharge purulent; always very copious.	No discharge.
Secretion dries into fine, soft scales, which are readily detached by the slightest touch, but are again very quickly renewed.	Secretion dries into either *brownish*-yellow scales, through which the discharge forces its way, or into furfuraceous scales.	The purulent discharge dries into large *greenish*-yellow crusts, by which the whole head, and even sometimes the forehead and part of the face, is in many cases covered, as if with a mask.	The scales are minute, dry, papyraceous, and imbricated, though scarcely, if at all, elevated over the surface of the scalp; readily separable in the form of a fine powder or dandriff.
The hair on the diseased patches is bent, twisted, apparently broken, and whitish; as the disease becomes chronic, it falls out on the slightest touch, leaving bald patches, with scattered masses of diseased hair, resembling tow; but with the progress of cure the hair grows again.	The hair is held together by the furfuraceous scales, or is kept in a constantly moist state by the discharge; but its texture and appearance are unaltered.	The hair is matted together by the thick discharge and scales, but is otherwise unaltered.	The hair is unaltered, but it falls out more easily than natural.
Highly contagious.	Not contagious.	Not contagious.	Not contagious.
Usually occurs in children from the age of 3 to 12.	Occurs at all ages, but most frequently in the earlier years of life.	Met with in children of all ages, but very rarely in adult life. The confluent form of the disease is more common in early infancy; the scattered, after the third year.	Most generally occurs in infancy, and in the advanced periods of life; very rare in childhood, adolescence, and manhood.

The swollen glands of the neck and abscesses of the scalp, though most frequently met with in impetigo, may occur in every form of eruption of the scalp; their occurrence is, therefore, of no value as diagnostic symptoms. Moreover, there does not seem to be any constitutional disturbance *peculiar* to the inflammatory eruptions of the scalp.

Of the four varieties now described, I have met with eczema the most frequently; next to it, impetigo; next, herpes; and pityriasis the least frequently.

The prognosis to be given in any of these eruptions depends more on the length of time which the disease may have lasted, than on the exact variety which is present: the longer they have existed, the more inveterate and obstinate they are, as also the more liable to relapse after cure. When seen early, and submitted to judicious treatment, they are generally cured in from a fortnight to three weeks, and sometimes in a much shorter space of time; but in old standing cases the cure is rarely accomplished in less than from two to three months. With reference to the peculiar form of eruption, I have found the prognosis as to curability to be as follows: 1st. the scattered form of impetigo; 2nd. pityriasis; 3rd. the moist form of eczema; 4th. confluent impetigo; 5th. herpes; and 6th. the dry form of eczema.

As respects the first group of eruptive diseases of the scalp, two principles must, I conceive, be laid down, to enable their treatment to be based on rational, and not on empirical, principles: first, that they are inflammatory, and secondly, that they are constitutional affections. That they are inflammatory is sufficiently proved by the preceding and attendant inflammation with which they are all accompanied, and by the character of the same eruptions when they occur on other parts of the cuticular surface. It is evident from what I have said, when describing their symptoms and diagnosis, that they are not all equally inflammatory, and also that the inflammatory character disappears much when they become chronic. That

they are constitutional diseases is proved chiefly by the great advantage derived from their treatment by the administration of internal alterative medicines.

It is, I am convinced, to the neglect of these two principles that the difficulty of treating scalp diseases, as so generally acknowledged, must be ascribed. For we find that some trust to external applications, others to internal remedies alone; and most practitioners use the most powerful stimulants to the scalp in every form and in every stage of its eruptions. Stimulating applications do unquestionably, in some instances, cure these diseases, when they become very chronic, and have, so to say, nearly worn themselves out; but the manner in which they do so is by exciting a fresh inflammation in the scalp, by which a new action is produced sufficient to change the condition which previously existed there. They, however, more frequently fail, and the existing disease is then much aggravated from their use; it is, moreover, only in the very chronic stage that they ever do prove beneficial, as the employment of even the most mildly stimulating applications proves highly injurious in the early stages of any of the eruptions of the first group.

One general rule which I have adopted in the treatment of every form of eruptive disease of the scalp, and from which, I think, I have derived much benefit, is, *never to shave off the hair;* I direct it to be cut *close* with a sharp pair of scissors, and to be kept cut as closely as possible while the least trace of the eruption remains. The mere operation of shaving the head produces much irritation, and the growth of the hair afterwards continues constantly to excite repeated attacks of inflammation, and thus interferes with the remedies employed. For the same reason I do not permit the use of a comb or hard brush, which are so generally used with the view of loosening and removing the crusts. The *softest* hair-brush may be used, but when the hair is kept cut sufficiently close there is no occasion even for it.

The local remedies which I am in the habit of employing are the carbonates of soda and potash, either made into an ointment with prepared lard, or in solution in distilled water or rose-water. I use them of various strengths, according to the form of the eruption, and the greater or less degree of attendant inflammation. The carbonate of potash, being of a somewhat more irritant character, is applicable only to those cases where the attendant inflammation is slight, as it generally is in pityriasis, in many cases of herpes, and in the more chronic forms of eczema; but the carbonate of soda is best suited for impetigo in all its stages, and for the acute and recent cases of the other eruptions. The quantity of either of the carbonates in the ointment varies from twenty grains to half a drachm to the ounce of prepared lard. As it has an unpleasant odour, in private practice I usually add three or four minims of the oil of lemon or oil of bergamot, which addition also makes it keep better; where, however, the inflammation is very active, even this small quantity of an essential oil would render it too stimulant: in all cases I commence with the weaker preparation. The ointment is applied three times daily, being lightly smeared over the eruption; it is washed off with the corresponding alkaline lotion every morning, previous to the first application for the day. In very inveterate cases, where the head is covered with thick, hard scales, a light poultice of linseed-meal should be first applied for twelve hours, the scalp is then to be covered with a piece of old linen, on which the ointment is spread, and an oil-silk cap laid over the linen; this is left on for twelve hours more, when the scales are readily removable by washing the head with the carbonate of soda lotion. A clean surface is thus procured, on which the ointment acts more readily.

The alkaline lotions are prepared by dissolving from half a drachm to a drachm of the carbonate of soda or potash in a pint of rose water or distilled water. During the whole course of treatment the head is washed, at least once daily, with

either of these lotions. They keep the scalp cleaner, and freer from scabs, than soap and water, which, however, I never permit to be used, as the irritant quality of soap tends much to retard the cure. In some cases, with which greasy applications disagree, but which we cannot ascertain except by trial, I use either of these lotions as the only external application; but then I order it to be applied five or six times daily.

In the chronic forms of any of this class of eruptions the application of a mild stimulant to the scalp becomes necessary, but more especially in cases of impetigo and eczema of long standing. The preparation which I have found most useful is a very dilute citrine ointment,—from half a drachm to a drachm of the officinal ointment to the ounce of prepared lard. This is applied only once daily, at bed-time, and washed off in the morning with the alkaline lotion, which is also used three or four times during the day.

In the treatment of the inflammatory division of eruptive diseases of the scalp, the alterative medicine that I employ is the yellow iodide of mercury (the incorrectly denominated protoiodide of the London Pharmacopœia): I prescribe it in combination with hydrargyrum cum cretâ and aromatic powder. To a child six years old I give half a grain of the yellow iodide of mercury, two grains of hydrargyrum cum cretâ, and two grains of aromatic powder, every second morning; for an older child I order the same quantity every morning; and for a younger child only every third or fourth morning. Should the child, however, be not more than three years old, I order half the quantity to be administered twice in a week; for infants at the breast, I omit the iodide of mercury, and give either the hydrargyrum cum cretâ or the hydrargyrum cum magnesiâ: the latter preparation I usually prefer, as it is a more certain mild purgative than the former.

In all cases I keep the child strictly on milk diet during the entire of the treatment.

Such is an outline of the plan of treatment I have now

employed for more than six years in this obstinate class of diseases, with almost uniform success, both as regards rapidity and completeness of cure. Some cases, of course, prove more rebellious than others, but I have met very few which resisted for so long as three months the remedies I have mentioned, when carefully and perseveringly employed. Like other skin diseases, eruptions on the scalp are apt to return; I have, therefore, invariably made it a rule to continue the treatment for at least a fortnight or three weeks after the disease has been to all appearance completely cured: this, I need scarcely say, it is often difficult, if not impossible, to do with the children of the poor, our hospital and dispensary patients.

Before I proceed to describe the only remaining eruption of the scalp, I shall shortly relate a few cases in illustration of the preceding observations.

January 31, 1844, I was sent for to see Master O'B., aged two years, a fine boy, with a florid complexion, well-developed body and limbs, and rather fat. He has had an eruption on the scalp from the time he was nine months old, for which he has been ever since variously treated. It is a case of very aggravated impetigo, the whole head and forehead, down to the eye-brows, being covered with greenish-yellow scabs, through which a copious, rich yellow discharge exudes in various parts; of late it has been extending much, and the child's mother was afraid that it would soon cover the whole face. The hair is all matted together, the head is hot, and the tongue is very foul, although his bowels are freed regularly twice in the day; his appetite is good. A light linseed-meal poultice was applied all over the head and forehead, and left on for twelve hours; he was ordered three grains of the yellow iodide of mercury, twelve of hydrargyrum cum cretâ, and twelve of aromatic powder, in six powders; one to be taken twice a week. The next morning, the greenish crusts being quite soft, the hair was ordered to be cut as close as possible, and the scalp and forehead to be washed four times

daily with a lotion consisting of twenty grains of carbonate of soda dissolved in eight fluid ounces of rose water. In a week's time, the scalp being quite free from any tendency to heat of surface or inflammatory action, and the scabs having nearly disappeared, though the discharge was still very copious, the head was ordered to be smeared every night, at bed-time, with an ointment containing half a drachm of citrine ointment to the ounce of lard; the lotion and powders to be continued as before. This treatment was continued without any alteration, except that of increasing the strength of the ointment one-half in about three weeks, until the 2nd of April, when there was not the least trace of the eruption; the hair was then permitted to grow, and he was gradually allowed to get meat, at first only twice a week, for dinner: he had been kept all through strictly on milk diet. I have been attending this child within the last few weeks, and there has never been the least return of the disease since the above date, now more than four years.

This case is a good example of rapid and permanent cure of a very inveterate form of impetigo. Recent cases of the scattered variety of the eruption are often cured in from a week to ten days, as in the following instances:—

Michael Daly, a fine child, three years old, was brought to the dispensary of Jervis-street Hospital Feb. 3, 1848. His mother states that about four or five days ago he complained of his head being sore and itchy, and on examining it she found little boils, as she calls them, on several parts of the head. The entire scalp is now the seat of impetigo sparsa, the hair is matted together in various places by the crusts, and there is a good deal of discharge present. The hair was ordered to be cut close; the carbonate of soda wash—half a drachm to ten ounces of water—to be applied to the head repeatedly during the day; and a third of a grain of yellow iodide of mercury, with a grain and a half of hydrargyrum cum magnesiâ, to be taken every morning. The child was brought to the dispen-

sary quite well on the 11th, but the remedies were ordered to be continued for ten days longer. I have seen him on the 25th of May, up to which time he had no return of the disease.

James Keogh, aged 8, was brought to the hospital, May 2, 1848, with impetigo sparsa of three days' standing; treatment as above; well in ten days.

I have reports of numerous cases of impetigo which were treated thus at the dispensary of the hospital during the last six years, and which were witnessed by the pupils; but it is needless to occupy space with the reports of any more. In one case, that of James Donohoe, extensive ulceration of the scalp on the crown of the head followed the bursting of an abscess which was consequent on an aggravated and long persistent attack of impetigo; and after the eruption was cured by the ordinary treatment, the ulceration healed in about three weeks under the use of a lotion of sulphate of copper, three grains to the ounce, and the hair has since grown on the part.

I have rarely found eczema, even when seen in its earliest stage, get well so rapidly as impetigo, the mildest cases requiring from three weeks to a month, and the more aggravated from two to three months, for their cure. The following case was treated in hospital.

John Halpin, aged 9, was admitted into Jervis-street Hospital, October 19, 1847, affected with eczema of the whole scalp, the left ear being also engaged in the disease; the hair was matted together at the roots, but at its free extremity covered with dry furfuraceous scales. The disease was of twelve months' standing. The hair was ordered to be cut quite close, and a light linseed-meal poultice applied. The next day he was directed to take a powder containing half a grain of the yellow iodide of mercury, two grains of the hydrargyrum cum cretâ, and two of aromatic powder, every morning, and to have the carbonate of soda ointment applied to the scalp three times a day, and the head to be washed every morning with the carbonate of soda lotion. On November 8th, being nearly well,

he was made an out-patient, but, although he attended regularly at the dispensary, he was not completely cured until the 20th of December.

Cases of herpes and pityriasis are much less common than either impetigo or eczema; thus, for the last eight months that I have been on duty at Jervis-street Hospital, I have treated twenty-eight cases of eczema, twenty-six of impetigo, six of herpes, and two of pityriasis; but I meet with both these eruptions in a much larger proportion in private practice. The only additional observation that I have to make as to their treatment is, that they bear stimulants—the lotion and ointment of carbonate of potash, and the dilute citrine ointment—at a much earlier stage, and much more freely, than either of the other eruptions.

Porrigo capitis constitutes the second division of eruptive diseases of the scalp. It is essentially a non-inflammatory disease; for although it is in some instances attended with heat, inflammation, and itching of the scalp, these symptoms depend on the presence of minute pustules which sometimes accompany the eruption, but in most cases they do not occur. It cannot be classified in the artificial arrangement of diseases of the skin by Willan, or any of the more recent writers on these affections, inasmuch as it is unquestionably a vegetable growth, a view of its nature first promulgated by Schönlein in 1839(*a*), and by Gruby in 1841(*b*), and since authenticated by the investigations of Hughes Bennett(*c*), Corrigan(*d*), Müller(*e*), Lebert(*f*),

(*a*) *Müller's Archiv. für Anatomie und Physiologie*, p. 82. 1839.

(*b*) *Comptes Rendus hebdomadaires des Seances de l'Academie des Sciences*, tom. xiii. pp. 32, 309. 1841.

(*c*) Transactions of the Royal Society of Edinburgh, vol. xv. p. 277; Edinburgh Monthly Journal for June, 1842; and Northern Journal of Medicine, Sept., 1845.

(*d*) Dublin Hospital Gazette, vol. ii. p. 1.

(*e*) *Archiv. für Anatomie und Physiologie*, 1842, p. 201.

(*f*) *Physiologie Pathologique*, tom. ii. p. 477, p. 22. 1845.

Remak(*a*), Vogel(*b*), Robin(*c*), and others. Its vegetable nature has been denied by Erasmus Wilson, the most recent English writer on the disease; but I have satisfied myself of the correctness of the conclusions arrived at in the investigations above referred to, by a personal examination of the diseased product in two instances with a powerful microscope. I at first failed in recognising the peculiar structure of the fungus, as figured by Bennett, and more recently by Robin, but this arose from using too low a power for the purpose, as Robin's illustrations were made with a microscope which magnified 500 times linear, and the power which I at first used was only 300; but on using a magnifier of 450, the eye-piece being of a low power, while the object-glass was a powerful achromatic, by which means a sufficient power was obtained without sacrifice of light, I was enabled without any difficulty to verify the correctness of his drawings.

Porrigo capitis, *the true tinea or scald head*, is a rather infrequent disease, occurring at all ages, but most generally in childhood, from the age of 3 to 12; I have, however, seen one instance of it in an infant only eight weeks old: the oldest person in whom I have met with it was the young man Kiernan, whose case I shall by-and-by give in full.

Porrigo, in its first stage, does not give rise to either heat of scalp or itching, and, consequently, is very rarely noticed until it is fully developed. It usually commences on the forehead, at the edge of the hairy scalp, but it spreads rapidly over the head, soon involving nearly the entire surface, the healthy patches which are left between the diseased spots being but very few, and small in extent. The eruption is also

(*a*) *Diagnostische und Pathogenische Untersuchungen*, p. 193, figs. 5 and 6. 1845.

(*b*) *Anatomie Pathologique générale*, traduit par A. J. L. Jourdan, p. 391. 1847.

(*c*) *Des Vegetaux, qui croissent sur l'Homme et sur les Animaux Vivans.* Par M. Ch. Robin. Paris. 1847.

met with on various parts of the body, the trunk, or extremities; but I have very rarely seen it there except when it existed at the same time on the scalp.

The appearance of this eruption is so peculiar, and so distinct from all the other eruptive diseases of the scalp, that it cannot possibly be mistaken for any of them. It first appears in the form of small, yellow, dry spots, about the size of a pin's head, of a bright yellow colour, seated on the surface of the skin, which is depressed slightly by them; each spot is distinct, hemispherical, slightly concave, or cup-shaped, on its free surface, and convex beneath, where it is adherent to the skin. On removing the small, diseased mass, that portion of the scalp on which it was seated is found to be somewhat depressed, smooth, and shining. A single crust of the disease, or *favus*,—as it has been termed, from its honeycomb appearance,—is often traversed by one, and sometimes by two hairs, which appear to grow, as it were, from the very centre, or most depressed portion; this has given rise to the notion that the disease is one of the bulbs of the hair, but the fact of its appearance on other parts of the body which are quite free from hair is a sufficient refutation of this opinion.

The eruption spreads by additions to the outer edge or circumference of each crust, which thus retains its hemispherical character, until it attains a diameter of two or three lines, or sometimes more. In a case which I have had recently under my care in hospital, some of the favi which were seated on the back of the trunk were fully half an inch in diameter; on the head, however, they rarely exceed the size above-mentioned. The adjacent favi, as they increase, unite with each other, and form large, irregularly-shaped masses, in which the original circular form of the individual crust is lost; the centre also of each is changed in appearance, and, instead of the cup-shaped depression, the entire surface is covered with alternate elevations and depressions, or, so to speak, ridges and furrows, concentrically arranged. The eruption thus increasing, the whole of the scalp,

often, too, the forehead, the neck, and parts of the trunk, become encased in one large, yellow crust, at the edges of which some favi, of the peculiar characteristic appearance, are invariably to be seen.

The crusts of porrigo are of a pale, sulphur-yellow colour; they are hard and dry, and break with a short fracture, exhibiting within a mealy powder, of a paler yellow than the external surface. They may generally be removed with facility from the scalp, but they bring away with them a thin layer of epidermis, which is firmly adherent to their under surface, through which small projections may be seen with a moderate lens, sometimes with the naked eye. These projections, or processes, pass into the dermis beneath, and when the crusts are torn forcibly away, blood issues through the small orifices into which they were inserted. From the very commencement of the eruption of porrigo the hair becomes altered; much of it falls out, and the straggling hairs that remain are thin, broken, weak, whitish, and readily removable with the crusts of the disease, in which they are firmly imbedded. When this affection has continued for any length of time, bald patches are left after cure, on which the hair does not again grow; and even where it has been cured at an earlier stage, the hair never regains its proper character, being weak, thin, and of a pale, whitish-yellow colour.

As the disease advances, much irritation of the scalp is produced; small pustules form here and there in spots as yet unaffected with the eruption; the tingling and heat are so unbearable as to compel the patient to tear the surface with his nails, even to such a degree as to cause ulceration; innumerable pediculi are engendered; the favus crusts emit an abominable odour, resembling that of mice; and a copious offensive discharge is secreted by the pustules and ulcerated spots: in short, an individual affected with this disease in its aggravated form becomes a loathsome and disgusting object.

I have already referred to the vegetable nature of this

eruption; it is in the spongy, friable contents of the favus that its characters are best seen. "Reduced to powder, and placed under the microscope, it presents," says Robin, "a mixture—1. of tortuous, branching tubes, without partitions, empty, or containing a few molecular granules (*mycelium*); 2. straight or crooked, but not tortuous tubes, sometimes, but rarely, branched, containing granules, or small, rounded cellules, or elongated cellules, placed end to end, so as to represent partitioned tubes, with or without jointed articulations (*receptacles, or sporangia, in various states of development?*); 3. finally, *sporules*, free, or united into bead-like strings. The mycelium is very abundant near the inner surface of the external layer, to which it adheres. The spongy, friable mass of the centre of each favus is principally formed of the sporules and the different tubes containing mycelium already described (*sporangia, or receptacles?*). We often find mixed with them *mycelium* tubes, but in small quantity. All these elements pass insensibly into each other: empty tubes (mycelium); tubes containing small, round corpuscules; tubes with corpuscules as large as the smaller sporules; sporules placed end to end, so as to resemble a hollow partitioned cylinder, with a tendency to separate at the joints; and free sporules. Bennett has given a good drawing of this arrangement."(*a*) M. Robin gives a minute description of the various parts of which this fungus is composed, as well as faithful and well-executed illustrations of this vegetable parasite, for which I must refer to his excellent essay. I shall only add, that he adopts the nomenclature of Remak, who has termed it "Achorion Schonleinii." The botanical characters of the plant are appended in a note(*b*).

(*a*) *Op. cit.* p. 8.

(*b*) "Achorion Schonleinii. *Remak.* Orbiculare, flavum, coriaceum, cuti humanæ presertim capitis insidens; rhizopodion molle, pellucidum, floccosum, floccis tenuissimis vix articulatis, ramosissimis, anastomoticis (?). Mycelium floccis crassioribus subramosis, distincti articulatis, articulis inæ-

Porrigo capitis is a contagious disease, the vegetable being propagated by the *mycelia*. Its contagious character has been denied by many, on the ground of the rarity of the disease, and the failure to produce it by inoculation, as tried by Gruby and others; the former of whom only produced the disease once out of seventy-six trials on vegetables, and not at all on animals. But Remak succeeded in inoculating his own arm in August, 1842(*a*); and Bennett, who had previously failed in his own person after repeated trials, succeeded completely in 1845, in producing the disease in one of his class by inoculation and close contact of the favous crusts, obtained from the head of a boy at that time in the Royal Infirmary. An account of his experiment, and also of Remak's, will be found in the Northern Journal of Medicine for September, 1845, p. 202. Now in all these trials to generate the plant, one important fact connected with the natural history of parasitical fungi has been overlooked by all, namely, *that they require for their growth a peculiar soil;* thus we find one genus is only found on snow, another on cheese, another on yeast, different varieties on different decaying vegetable matters, and individual genera and species on various living animals and plants; nay, even different sorts on different parts of the same animal. This holds true with the Achorion Schonleinii; it requires for its reproduction to be planted in a peculiar soil, that is, on an individual whose system is in a peculiar cachectic condition; and until it is ascertained what this exact constitution is, a single instance of its propagation by contact—and such instances are not uncommon—must be held as sufficient proof of its contagious character.

Some have held that this eruption occurs in scrofulous persons only; others, that it is an hereditary disease; but neither statements are consistent with the observation of the cases

qualibus, irregularibus, in sporidia abeuntibus; sporidia rotunda, ovalia vel irregularia, in uno vel pluribus lateribus germinantia."

(*a*) *Medicinische Zeitung*, for 1842.

which I have seen. It appears to have some connexion with, though I cannot say that it is *caused* by, poverty, filth, wretchedness, and a weak development of the mental faculties. Unquestionably where the disease has long existed, the mind is weak, and the countenance presents a somewhat idiotic expression.

I have spoken so fully of the characters and symptoms of porrigo, and it differs so completely from the other eruptive diseases of the scalp, that I do not think any further observations are required on its *diagnosis*. When the affection has become chronic, it is usually complicated with impetiginous pustules, eczematous scales, and pityriasis.

Porrigo capitis is the most obstinate of the eruptive diseases of the scalp, and cases of it are recorded as having resisted the most varied treatment for years; indeed, by many physicians it is believed to be altogether incurable. Our prognosis, therefore, must be always less favourable as regards the duration of this affection, than when any of the other forms of eruption is present. The experience, however, which I have had, enables me to state, that, although an obstinate disease, it is a curable one, and one which, when duly attended to, may be cured in a much shorter space of time than is generally believed.

The plan of treatment which I have found effectual in porrigo is both constitutional and local. The constitutional remedy which I use is the iodide of arsenic, a powerful alterative, and an active remedy, but one which may be given with the greatest safety to the youngest child, its effects being, of course, duly watched. The dose of this preparation is, for an adult, from one-tenth to one-fourth of a grain, very gradually increased; for a child six years old, one-fifteenth of a grain; and for a younger child, from one-eighteenth to one-twentieth of a grain. It is best given to adults in the form of a pill, made with dry manna, and a little mucilage; to a child it is best administered in the form of powder, its minute division being perfected by means of a little white sugar or aromatic

powder. When the system is saturated with this medicine, we usually find that some constitutional symptoms, such as acute headach, dryness of the throat, &c., are manifested; but in some cases I have given it in full doses for many weeks without any manifestation of its effects, further than those produced on the disease for which it was administered. When, however, it gives rise to the symptoms above mentioned, its use should be intermitted for some days, and an active purgative administered.

The following is an outline of the local treatment: the hair is to be cut, *not shaved*, as closely as possible, and a large linseed-meal poultice applied and kept on for twelve hours, so as to soften the crusts. As soon as the poultice is removed, the head is well washed with the stronger carbonate of potash lotion, and slightly brushed with a soft hair-brush or roll of lint; the scalp is then covered with the carbonate of potash ointment spread on lint, and over it a closely-fitting oil-silk cap is placed: the ointment is renewed twice daily. By the use of these applications the crusts of the eruption are generally completely removed in from two to three days. The carbonate of potash ointment is at the expiration of this time replaced by one containing the iodide of lead, in the proportion of half a drachm of the iodide to an ounce of prepared lard; the head is to be still washed every morning with the carbonate of potash lotion. In some cases it will be found that the iodide of lead ointment excites a certain degree of inflammation of the surface of the scalp after it has been used for some days; when such occurs it should not be applied for a day or two, and the lotion alone employed three or four times daily. After this first attack of inflammation disappears, I have not seen it again recur, although the use of the ointment had been persisted in for months. The strength of this ointment should be increased after a fortnight; if the disease again appear, even to double that above indicated. I have only lately employed the oil-silk cap, but its use appears to be attended with the greatest benefit. The ad-

vantage derived from its employment is twofold: in the first stage of treatment, by keeping the hard and firmly-planted crusts of the disease in a constant atmosphere of warm moisture, it softens, and thus renders them more easily removable; and in the after-treatment the mucedinous vegetable being retained by it in the closest contact with the iodide of lead and the emanations arising therefrom, is more certainly destroyed, and its reproduction prevented.

After continuing this treatment for at least three weeks or a month, all external applications should be stopped, and the hair allowed to grow, so as to ascertain if the fungus will be reproduced; for it often lies dormant, and suddenly shoots forth, increasing rapidly when no longer subject to the action of the iodide of lead. Should it again return, the local applications must be had recourse to as before, immediately on its appearance. We should continue the administration of the iodide of arsenic until we are quite satisfied that the cure is complete.

The rational principles on which I think this plan of treating porrigo capitis proves successful, and which first led me to its adoption, are: "*That it is a vegetable production, which grows and is reproduced on the cuticular surface of individuals whose system is in a peculiar cachectic state, and, consequently, that it is a constitutional affection.*" The object, then, is, to destroy the vitality of the fungus, and, by altering the nature of the soil on which it flourished, to prevent its reproduction. It is with the first view that I use the iodide of lead as a local application, and to fulfil the second indication that I administer internally the iodide of arsenic. Numerous metallic salts are, it is well known, and has been experimentally proved, poisonous to vegetables; but the inferior classes of vegetables, like the lower classes of animals, have a much more persistent vitality than those placed higher in the scale. So numerous were the local applications that had been employed, without success, in the treatment of porrigo, that but few were left

for me to try. Corrosive sublimate, as used by Dr. Corrigan(*a*), seemed to have proved the most successful of any, but the danger of its application to an extensive diseased surface for any length of time, from the constitutional symptoms which it must be so apt to produce, was to me a sufficient contra-indication to its employment. Iodide of sulphur had been very generally used on the Continent, with little advantage; but I am not aware that any person had previously employed the iodide of lead.

My reason for administering the iodide of arsenic internally, in preference to other alteratives, was, that I had seen it productive of the best effects in other cuticular diseases, in which the constitution was much engaged, especially in inveterate cases of psoriasis. I also found that it combined the effects of a tonic and alterative, the class of remedy indicated in this affection, and that its use, even when continued for a lengthened period, was unattended with danger. I restrict the patients to a purely milk diet, because, as I have already mentioned, when speaking of the inflammatory eruptions of the scalp, I found it useful in their successful treatment. I shall now conclude with a short account of a few cases in illustration of the effects of these remedies.

The following case was reported by Mr. J. B. Watson. Owen Kiernan, aged 18, was admitted into Jervis-street Hospital, May 23, 1846, affected with a copious eruption on the scalp. He states that it first appeared about three years and a half ago, when he took it from his brother, who was older than himself, and who laboured under the disease for years. At first he thinks that there used to be some matter on his head with the pimples, and that it caused him much itching and annoyance, his hair falling out readily; but he is quite positive that for the last two years it has been quite dry and powdery. At present his health seems good, but he has a foolish appearance,

(*a*) *Op. cit.* p. 4.

and is evidently somewhat silly. The top of his head is quite devoid of hair, of a clear white colour, smooth and shining, with rather large-sized opaque yellowish scales scattered over it at considerable intervals. On the temples and back of the head the hair is still remaining, but it is thin, whitish, broken, and like tow; it is on these parts that the disease exhibits itself chiefly; appearing in the form of a number of *saucer-shaped* scabs, sometimes separate, but mostly confluent, forming crusts of irregular shape in some places, and scattered pretty thickly over the intervening spaces. Each scab is nearly circular, dry, raised at the edges, concave at the centre, and pierced with usually a single hair, but sometimes a tuft of hairs, which it firmly encircles. They are of a pale sulphur-yellow colour, and show a tendency to crumble into a deeper-coloured yellow powder. There seems to be no inflammation around the bases of the scabs, or in the subjacent tissues, but the entire scalp is covered with pediculi and exhales an abominable odour. He has been repeatedly subjected to various treatment, but without the least benefit.

The day of his admission a linseed-meal poultice was applied to his head; and the next morning it was ordered to be washed with the carbonate of potash wash, and the following mixture was prescribed for him: bicarbonate of soda, two drachms; simple syrup, four ounces: dissolve. A tea-spoonful to be taken three times a day in a glass of water. To have milk diet.

May 28. He was ordered two grains of the iodide of arsenic, to be made into twenty pills with the aid of hard manna and mucilage, of which one was to be taken three times a day; and an ointment composed of half a drachm of the iodide of lead, six drachms of prepared lard, and two of white wax; with which the head was directed to be smeared three times daily; the carbonate of potash lotion to be still used every morning. On the 23rd of June the carbonate of soda lotion was substituted for that of the carbonate of potash, and the ointment was

directed to be stopped; and on the 26th of June, there being no appearance of any return of the disease, he was made an out-patient. This young man presented himself at the dispensary of the hospital in May, 1847, nearly twelve months afterwards, up to which time there had been no return of the disease.

Another case, which I attended much about the same time in private practice, a child eight years old, in the middle rank of life, was treated precisely as Kiernan, but was not cured for more than three months, a relapse having occurred at the end of the second month, which I ascribed to the child being allowed to indulge too soon in animal food.

The following is an example of the very inveterate character which porrigo usually presents. I regret much that, at the time I was treating it, I was not aware of the benefits derivable from the use of the oil-silk cap; as had it been employed I feel confident the cure would not only have been permanent, but more rapid.

Catherine Molloy, aged three and a half years, was admitted into Jervis-street Hospital, October 9, 1847. She is a full child, with a heavy, stupid expression. The entire of her head is thickly covered with large yellow crusts of porrigo, small distinct favi being scattered over the forehead and neck. The disease is also present on the back, extending from the tip of the right shoulder to the last rib, and from the axilla to the vertebræ, but not passing the median line. In this latter situation some of the favi are fully an inch in diameter, but for the most part they form a large crustaceous mass of a bright yellow colour: there are also some spots on the arms and other parts of the body. The whole of her person emits an exceedingly offensive odour, and she is covered with pediculi. The hair on those parts of the scalp to which the disease has not yet spread is of a dark brown colour, and matted together by the discharge from numerous impetiginous pustules, which are thickly scattered on them.

Her mother, who is one of the lowest class of beggars, has one other child, an infant at the breast; she states that this little girl has been affected with the disease since she was a few months old; the infant has some spots of it on the head, and she herself also has numerous crusts of the eruption on her head and neck. She states that both she and the infant took it from the elder child, the infant first, herself afterwards from the infant.

The child was first cleansed as well as possible in a warm bath, and the pediculi destroyed with mercurial ointment. The hair was then cut close and the treatment I have above described employed, except that the iodide of lead ointment was used much weaker (fifteen grains to the ounce); and as I was afraid to give the iodide of arsenic to so young a child, the yellow iodide of mercury was substituted for it. On the 20th of October the strength of the ointment was increased, and on the 21st the iodide of arsenic was prescribed in the dose of a twenty-fourth of a grain every morning. On November 5 the eruption on the trunk was nearly well, and that on the head much better. The strength of the iodide of lead ointment was increased to half a drachm to the ounce, and the iodide of arsenic was prescribed in doses of the eighteenth of a grain daily.

December 29. There was not the least trace of the eruption on the trunk, but a fresh outbreak of it had occurred on the scalp, which a few days previously was nearly well; an ointment was ordered to be applied to it, containing a drachm of the iodide of lead to the ounce of lard; and the twelfth of a grain of the iodide of arsenic directed to be taken every morning. On the 24th of January she was so well that the ointment was stopped and the carbonate of soda wash ordered to be used four times daily. The disease, however, again broke out on the head, but not at all on the trunk, early in February; and my term of attendance at the hospital having expired the end of that month, I lost sight of the case, which was dismissed from hospital immediately afterwards by my colleague.

This case is especially interesting, as showing the safety with which iodide of arsenic may be given to a very young child; during the time that its use was continued, nearly four months, I had only to intermit its use twice in consequence of its causing headach, which was readily removed by a mild purgative. The repeated outbreaks of the eruption I ascribe to the complete impossibility of keeping the child strictly on milk diet; being so young, she was made a pet of by the other patients in the ward, who were constantly giving her meat: this I was told by the nurse, and it was proved by the condition which the child acquired. I may remark here that this is the greatest difficulty I find in treating eruptive diseases of the scalp in private practice; parents are so much afraid of their children not growing strong if they are altogether debarred the use of animal food. The strict adherence to milk diet, however, I look on as an essential part of the plan of treatment I have laid down.

The next and last case which I shall narrate, though still in hospital (June 5, 1848), is, I am quite confident, completely cured. I am chiefly anxious to introduce it here, because it is the first case of porrigo in which I have used the oil-silk cap, and its progress to amendment has been much more rapid than any case that I have hitherto treated. It is reported by Mr. William Moore.

J. Maginn, aged 8, a fine healthy-looking boy, was admitted into Jervis-street Hospital, May 15, 1848. He states that about three years since some small spots appeared on the back part of his head, which gradually spread in every direction until nearly the entire of the scalp was covered. It now presents the characteristic appearance of porrigo, a large bright yellow crust enveloping the head and spreading down the left cheek in front of the ear; the hair is thin, scattered, broken, whitish, and enveloped in the favous crusts. There are also some spots of the eruption on the back and on the right leg. The head is covered with pediculi, and emits a disagreeable

mousy odour. He states that he contracted the disease from putting on the cap of a schoolfellow who had a sore head. He has been variously treated without the least benefit.

On admission the hair was cut close, and a large linseed-meal poultice applied over the head. Next morning he was ordered an ointment, containing twenty grains of the iodide of lead to an ounce of lard, to be spread on lint and applied over the entire of the head, which was to be then covered with a closely fitting oil-silk cap. The head was also ordered to be washed every morning with the carbonate of potash lotion, half a drachm to twelve ounces of water. For internal administration the following powders were prescribed: iodide of arsenic, a grain; hydrargyrum cum cretâ, thirty grains; aromatic powder, thirty grains; to be divided into fifteen powders, one to be taken three times a day. To be kept strictly on milk diet.

June 4. The eruption has been now for some days completely eradicated, both on the head and body; the ointment was ordered to be stopped and the hair to be allowed to grow, but the powders and lotion to be continued for another week.

Art. III.—*An Outline of the History of Pharmacy in Ireland.* By William D. Moore, M. B., Licentiate of the Royal College of Surgeons, Edinburgh, and of Apothecaries' Hall, Dublin(*a*).

Circumstances having a short time since directed my attention to the early history of pharmacy in Ireland, I was fortunate enough to discover some old and apparently forgotten documents which afford so much information on the subject that I am induced to think a brief sketch of the facts deducible from them may not be uninteresting. Before, however, entering on the more immediate subject of this paper, I shall

(*a*) I am happy to acknowledge my obligation to Dr. Aquilla Smith for much valuable assistance in the compilation of this Paper.

endeavour briefly to collect from various writers a few of the most striking features of the origin and progress of the apothecary profession in other countries, as a means of comparison with that of our own.

It may be considered a universal law, that in countries where civilization is imperfect the practice of medicine is simple: the performance of a few surgical operations, and the exhibition of a few indigenous plants, constitute, in the infancy of nations, the entire practice of the healing art. These plants being easily collected, their preparation requiring little skill, there exists no need of the apothecary(*a*); the prescriber either prepares and administers his medicines himself, or they are prepared under his superintendence by servants or other uneducated persons. So it was in ancient Greece and Rome. The ιατρος of the Greeks corresponded nearly to what we should term the general practitioner. The Roman physicians likewise prepared the medicines prescribed by themselves, but employed others to collect the herbs of which the materia medica then almost exclusively consisted. Many of these herb-dealers soon encroached on the business of their employers, by selling compounded medicines; and Pliny even reproaches the physicians of his day for purchasing their medicines from the Seplasiarii, without knowing

(*a*) In the English translation of the oldest and most authentic history extant, the word "apothecary" occurs in Exodus, xxx. 25 and 35; it also occurs in Ecclesiastes, x. 1; and in Ecclesiasticus, xxxviii. 8, and xlix. 1. The word "physician" occurs four times in the Old Testament. I am indebted to the kindness of a learned friend for the following remarks on this subject:

"The original word, translated 'apothecary,' in the Hebrew passages referred to, is the same in all, and means properly a person who compounds perfumes or ointments, by mixing different kinds of aromatic products, so that the term corresponds more nearly to our perfumer than apothecary.

"The Septuagint render it by μυρεψός, which is also the word used in the two passages of Ecclesiasticus.

"The word translated 'physician' denotes, according to its etymology, one who *stitches up a wound*, and therefore approaches nearer to our surgeon than physician."

of what they were composed, instead of making them up themselves as formerly. These herb-dealers had, however, but little resemblance to our apothecaries(*a*).

From Pliny's statement it would appear that it was long before regularly educated physicians obtained a footing in Rome(*b*). The practice of medicine was, probably, for 600 years in the hands of quacks and casual practitioners. This was partly owing to the simple and active life led by the Romans. "A science, the offspring of luxury and of depravity, with difficulty found access to a nation, all whose members, from the chiefs to the lowest in the state, were warriors, enured to fatigue, or hardy cultivators of the soil."(*c*) "But as the relations of the Romans with the Greeks became multiplied, and as luxury progressed among the former, physicians were seen to establish themselves in the capital of the world(*d*). The Greek physicians who first settled there were, for the most part, proprietors of baths; and many of these adventurers were slaves whom their masters, incapable at first of appreciating the advantages of science, and afterwards enervated by the luxury of the Greeks, sold or set free, after having presented them with considerable gifts in return for benefits received from them. These freedmen established shops, which the Romans called *medicinæ*, in which they sold medicines and profitably exercised their talents. But other physicians, who came to Rome under more favourable circumstances, enjoyed advantages and privileges which an art so noble as medicine is entitled to exact from all civilized nations; and when the Romans

(*a*) See Beckman's History of Inventions, Johnson's translation, vol. ii. p. 122, *et seq.*; Pliny, lib. xxxiv. cap. 11.

(*b*) Pliny, lib. xxix. cap. 1. "Ceu vero non millia gentium sine medicis degant, nec tamen sine medicinâ, sicut populus Romanus ultra sexcentesimum annum, nec ipse in accipiendis artibus lentus."

(*c*) Sprengel, *Histoire de la Medicine, traduite de l'Allemand par Jourdan*, vol. i. p. 176.

(*d*) Sprengel, *Op. cit.*, p. 189.

expelled the Greeks from Italy, the law which banished them excepted by name those who followed the profession of medicine."(*a*)

The establishment of the Alexandrian school, and the cultivation of science at that seat of learning, after some time led to the division of medicine into distinct professions; accordingly we find it described by Celsus, who lived about the time of Augustus or Tiberius, as consisting of the departments of dietetics, pharmacy, and surgery. "These terms did not, however, possess precisely the same signification as in modern times. Dietetics comprehended not the regulation of diet alone, but every circumstance connected with the general health or management of the patient, and corresponded very nearly to the *medicus*, or physician, of later times."(*b*) The second included with the composition of medicines the performance of many of the operations of surgery; and to the third was allotted the treatment of surgical diseases, many of the operations being committed to the professors of the second branch. This threefold division seems to have continued, for the most part, until the decline and fall of the Roman empire(*c*).

It is, however, to the Arabs that chemistry and pharmacy were, at a subsequent period, most indebted. The former had been cultivated by the philosophers of Alexandria, solely in reference to the transmutation of the metals. The Arabs had a particular taste for it, and early applied themselves to its study; for their first chemist, commonly known by the name of Geber, lived in the eighth century. In his work on alchemy mention is made of some mercurial preparations, such as corrosive sublimate and red precipitate; and also nitric acid, nitromuriatic acid, nitrate of silver, and many other chemical pre-

(*a*) Sprengel, *Op. cit.*, p. 190.

(*b*) History of Medicine, Cyclopædia of Practical Medicine, p. xv.

(*c*) Good's History of Medicine, so far as it relates to the Profession of the Apothecary, from the earliest Accounts to the present Period. Second Edition. London, 1796. Page 62.

parations. Other Arabian philosophers and physicians were also engaged in the study of chemistry, particularly as it relates to pharmacy(*a*).

Mesue, who died in the ninth century was the son of an apothecary, and bred under Gabriel, the son of Backtishua, and by him preferred to the inspection of the hospital(*b*). He was a Nestorian Christian, the best scholar and physician of his age, and in great favour with the several caliphs(*c*).

In fact the Mohammedans cultivated pharmacy with much success, and almost entirely changed its aspect. They invented the names alcohol, "*alkohal;*" julep, "*djousab*," which word in Persian signifies "rose water;" syrup, "*schirab ;*" naphtha, "*nefth ;*" camphor, "*kafour ;*" and many others still in use. They also appear to have introduced the use of formulæ, sanctioned by the government, for the preparation of medicines. In the latter part of the ninth century appeared, under the title of "Krabadin," the first dispensatory ever published. That of Abou'l Hassan-Hebatollah-Ebno' Talmid, bishop and physician of the Caliph of Bagdad, enjoyed in the twelfth century a great celebrity, and was observed by the Arabian apothecaries. The latter were under the immediate superintendence of the government, who took especial care that medicines were not adulterated, nor sold at too high a price. The General Afschin visited in person the pharmacies of his armies, to ascertain if they contained all the medicines mentioned in his dispensatories(*d*).

Avenzoar, who flourished in the eleventh century, applied

(*a*) Sprengel, *Op. cit.*, vol. ii. p. 263.

(*b*) Hospitals had been established by ecclesiastics in the sixth century, but in the middle of the eighth the caliphs opened at Bagdad the first hospitals and public pharmacies intended to facilitate the study of medicine. So great was the celebrity of Bagdad at one time that it contained 6000 students.—*Sprengel.*

(*c*) Freind's History of Physic, vol. ii. p. 38.

(*d*) Sprengel, *Op. cit.*, vol. ii. p. 264.

himself to pharmacy, and, as he tells us, "took great delight in studying how to make syrups and electuaries, and had a strong desire to know the operations of medicines by experience, the way of extracting the virtues of them, and the manner of compounding one with another."(*a*) He was not only versed in physic and pharmacy, but in surgery also. From his writings, however, it is plain that these were then separate professions, for he makes excuses for himself that, contrary to the custom of his country and the example of his father, he had applied himself to the study of the two latter, which, about the ninth century, had begun to rank much below physic, and were, in his time, so little esteemed by the physicians (the *Medici Honorati et Nobiles*) that they thought it below their character to understand them; and they, therefore, left all manual operations, such as bleeding, couching of cataracts, application of caustics, &c., as well as the composition of medicines, to their servants, the *servitores* and *ministri*(*b*).

In addition to the chemical preparations we have alluded to, the Arabians added to the list of remedies many vegetable products of the southern and eastern countries of Asia; for example, rhubarb, tamarinds, cassia, manna, senna, camphor, various gums and resins, and a number of aromatics, which were brought from Persia, India, and the Oriental Isles(*c*). They also first introduced the use of gold and silver leaf in medicine, and were the first to prepare syrups with sugar instead of honey, as used by the Greeks. They had also many forms for pills and electuaries(*d*).

By the settling of the Moors in Spain, and the intercourse which they and other Arabians had with Italy, Arabian medicine as well as other branches of learning were introduced into Europe; and it is probable that so early as the middle of

(*a*) Freind, vol. ii. p. 101. (*b*) Freind, vol. ii. p. 111.
(*c*) History of Medicine, Cyclopædia of Practical Medicine, p. xxxiv.
(*d*) Freind, vol. ii. p. 206.

the seventh century there were Hebrew, Arabic, and Latin professors of physic settled at Salernum, which place soon grew into that credit that Charles the Great thought fit to found a college there in the year 802, probably at that time the only one of the kind in Europe(*a*).

About the close of the tenth century, Jews, from their knowledge of the Arabic language, were the chief physicians in Europe; and although, by the canon law(*b*), no Jew might be a physician or give physic to a Christian, there was scarcely a Christian Court where physicians of this nation were not entertained, and even some Popes retained them in their service(*c*).

The patron of the College of Salernum was St. Matthew; the motto of its seal, "*Civitas Hippocratica.*" The student of physic was obliged to devote three years to philosophy, afterwards five to medicine, and at the same time to study surgery, "which forms a part of medicine;" and if to be admitted surgeon, he was to study anatomy for one year. He was sworn to inform the royal authorities when a druggist (*confectionarius*) falsified medicines; to prescribe for the poor gratuitously; to have no share of gains with the apothecaries; and not to keep a pharmacy (*statio*) himself(*d*).

The apothecaries were obliged to provide themselves with certificates of their capacity from the faculty of medicine, and to bind themselves by an oath to prepare their medicines according to the formulary of the School of Salernum, approved of by the State. They were forbidden to charge more than a certain profit; were obliged to prepare their syrups, electuaries, and antidotes in presence of sworn commissioners; in case of

(*a*) Freind, vol. ii. p. 218.

(*b*) This law was established at the instigation of the clergy, who were now endeavouring to rival the Jews as practitioners of physic, and through its operation they eventually succeeded in superseding them.

(*c*) Page 227.

(*d*) See Freind, vol. ii. p. 230; and Sprengel, vol. ii. p. 363, 364.

infringement of which law they were liable to confiscation of their goods, and the commissioners, if accomplices, were punished with death(*a*).

The school of Salernum appears to have been the earliest establishment in which what may be styled regular medical diplomas were granted to candidates after they had passed through a prescribed course of study, and been subjected to examination(*b*). It survived the Saracenic School in Spain, and about the year 1225 had great privileges conferred on it by the Emperor Frederick II. Towards the end of the fifteenth century, however, it was eclipsed by the rising reputation of the Universities of Bologna and Paris.

In most parts of Europe, however, the exercise of the medical profession had now fallen into the hands of the monks and other clergy, who were generally very ignorant, and practised physic, in all its branches,—combining the operative parts of surgery with the prescribing and administering of medicine. Their books were bad Latin translations of the Arabic, itself, in many instances, a bad translation of the Greek. The eighth Canon of the Council of Tours (A. D. 1163) declared that none of the regular clergy should devote their attention to physical compositions (*confectiones physicales ponderandas*); and other decrees were issued, prohibiting the higher clergy from practising any branch of physic, and forbidding the lower orders to perform any surgical operation, especially any involving the use of fire or cutting instruments. From this time the monks confined themselves to the prescribing of medicines, to be compounded and administered by others, and wholly abstained from the manual operations of surgery; in consequence of which this deserted profession fell into the hands of the barbers and smiths, the former of whom had usu-

(*a*) Sprengel, vol. ii. page 365.

(*b*) History of Medicine, Cyclopædia of Practical Medicine, p. xxxvii.

ally been employed by the monks to assist at the baths, in the application of ointments, and in various surgical operations, and soon became the chief practitioners of surgery(*a*).

In England these barber practitioners kept little shops for cutting hair, shaving, bathing, and curing the wounded, particularly about the royal palaces and houses of the great, exhibiting the bandaged pole as a symbol, "that all might know where to apply in time of need."(*b*)

That the apothecaries, as "compounders of medicine after the orders of the physician," first existed among the Arabians, there can, I think, from what has been stated, be little doubt; and it is probable that the practice of pharmacy, as it had existed in Africa, was introduced into Spain and Italy by the Arabian physicians who accompanied the Caliphs, or Arabian princes. They appear, in process of time, to have thence extended northwards, and to have supplied the continent of Europe. It will be seen hereafter that the apothecaries of Great Britain and Ireland, for the most part, originated in a different manner; and to this difference may, perhaps, be due the fact that, while they, at an early period, became practitioners in physic, their continental brethren have always confined themselves to pharmacy and the strictly collateral sciences, chemistry and botany(*c*). Dr. Mohsen(*d*) states, that the first apothecaries in Germany came from Italy, and Sprengel(*e*) informs us, that in the fifteenth century the custom of the Arabs was adopted in France, and that the apothecaries were sub-

(*a*) See Willcock's Laws of the Medical Profession, p. 8; Fleury's Hist. Eccl., tom. xv. p. 134; Sprengel, vol. ii. pp. 350, 351; and Penny Cyclopædia, art. "Surgeons, College of."

(*b*) Willcock, p. 16.

(*c*) In the eleventh volume of the First Series of the Dublin Medical Journal, p. 358, there is an interesting paper, by Doctor, now Sir Robert Kane, on the State of Pharmacy in Germany.

(*d*) *Geschichte der Wissenschaften in der Mark Brandenburg, besonders der Arzneywissenschaft.* Berlin, 1781. 4to.

(*e*) Vol. ii. p. 484.

jected to the superintendence of the Faculties, and of physicians salaried by the State(*a*). At this epoch the apothecaries of Germany were only druggists; they prepared no medicaments, but brought them from Italy to sell. In the majority of towns they followed at the same time the business of confectioners; and the magistrates always specified in their licenses, that they should send each year a certain quantity of good sugar confections to the Council House(*b*).

In Halle the first apothecary's shop was opened in 1493, before which period medicines were sold only by grocers and barbers. In Stutgard a shop was opened early in the fifteenth century by a person named Glatz; at Augsburgh one was kept by a female apothecary in 1445; in Frankfort-on-the-Maine shops existed before 1472; at Berlin one was established in 1488. In 1409, when the University of Prague was moved to Leipsic, an apothecary's shop was opened there, and called, as that at Prague had been, by the name of the Golden Lion(*c*). In 1507 an order was passed that the apothecaries' shops should be from time to time inspected; in 1512 a price was set upon their medicines, and all others were forbidden to deal in them.

In many places, and particularly in opulent cities, the first apothecaries' shops were established at the public expense, and belonged to the magistrates; a particular garden was also often appropriated to the apothecary, in order that he might rear in it the necessary plants. Apothecaries' shops for the use of courts were frequently established and directed by the consorts of princes; one of this kind was founded at the court of Dresden by the Electress Anne, a Danish princess, in the year 1581(*d*).

(*a*) In France the apothecaries received their Statutes in the year 1484, from Charles VIII.

(*b*) Sprengel, vol. ii. p. 484.

(*c*) Beckmann's History of Inventions, translated by Johnston, vol. ii. p. 140.

(*d*) Beckmann, *Op. cit.*, p. 141.

In Hanover the first apothecary's shop was established by the Council of State in 1565.

Gustavus Erickson, King of Sweden, was the first person in that country who attempted to establish an apothecary's shop. On the 20th of March, 1547, he requested Dr. John Audelius, of Lubec, to send him an experienced physician and a good apothecary(*a*). On the 5th of May, 1550, his body physician, Henry Von Diest, received orders to bring a skilful apothecary into the kingdom. When the king died in 1560, he had no other physicians with him than his barber, Master Jacob, an apothecary, Master Lucas, and his confessor, Magister Johannes, who, according to the fashion of the day, practised physic and prescribed for His Majesty. Master Lucas, it appears, was the first apothecary at Stockholm(*b*).

The first apothecary mentioned in the Fœdera is Coursus de Gangeland, an apothecary of London, to whom Edward III., in the year 1345, granted a pension of 6*d. per diem*, for taking care of and attending His Majesty during his illness in Scotland(*c*). In the same reign Pierre de Montpellier appears,

(*a*) The following is Frederic Hoffmann's description of a good apothecary, &c.:

"Pharmacopœus debet esse in arte preparandi instructus, circumspectus, Latina lingua gnarus, materiam medicam tam simplicium quam compositorum accuratissime dignoscens, indigenarum et exoticarum notitiam habens, dilecta emat, eademque visu, gustu, olfactu, tactu, et aliis examinat modis, vasculis idoneis reponat, singulis mensibus singula perlustrat et dilectum instituat. Fabem suam non mittat in mossam (?) medicam et Praxin non exerceat, nil sine medici præsitu in componendo immutet, ne quid pro quo substituet, nec ullius quam medicinæ doctoris formulas vel receptas recipiat, purgantia, opiata, vel deleteria, nemini de plebe vendat, nec doctorum arcana alio faciat communia.

(*b*) Beckmann.

(*c*) "De pensione apothecario solvenda. Rex thesaurario et Camerariis suis salutem cum nos curam solicitam quam dilectus nobis Coursus de Gangeland, apothecarius Londoniæ, circa nos, nuper in partibus Scotiæ, dum gravi detinebamur ægritudine apposuit," &c.—*Rym. Fœd.* An. 19 Edw. III. A. D. 1345.

from the wardrobe account, to have been apothecary to Prince Edward in 1360; and J. Falcand de Luca sold medicine in England in 1357.

But this importation of foreigners did not long continue. The attendants of Henry VI., three physicians and two surgeons, who were appointed by his Council to administer medicines and advice, are obviously English names,—Arundel, Saceby, Hatcliffe, Warren, and Marshall.

"In the reign of James I. the apothecaries were incorporated with the grocers, and continued so until the thirteenth year of his reign, when they were formed into a distinct corporation. Their union, probably, arose originally from the grocers having added to their stock some ointments and medical herbs; on the introduction of chemical medicines, however, when too great a variety in the mixtures of the physicians had rendered the medical department of their trade unintelligible to the ordinary grocer, the pharmacopolites appeared as a separate class, and claimed a superiority over the dealers in cheese, butter, and sugar"(*a*).

They had from a very early period occasionally prescribed the medicines which they sold, thus trespassing(*b*), as it was thought, on the province of the physician, until their right to do so was supported by the decision of the House of Lords, in the case of the College of Physicians against Rose, in 1703, since which they have continued to enjoy this privilege without molestation.

(*a*) Willcock's Laws of the Medical Profession, p. 18.

(*b*) According to Murett (himself a physician), in his "Short View of Frauds and Abuses," published in 1669 (in which he complains of the encroachments of the apothecaries), the physicians were the original cause of their practising: "Sending them to visit their patients to give them the best account they could of the state of their health and effect of their medicines; and of later years taking them with them in their visits;" so that, "in the plague time, 1666, most of the physicians being out of town," the apothecaries "took upon them the whole practice of physic." See London Medical and Physical Journal, vol. xii. p. 429.

So generally had this branch of the Faculty superseded in many respects the practice of the physician in England, that in the 55 Geo. III. an Act was passed to provide for the deficiency of their education; thus, for the first time, placing them, as a body, on the footing of a liberal profession(*a*).

I must now return to the barbers, in whose hands we left the practice of surgery after it had been abandoned by the clergy, in consequence of the decrees of the several Councils held in the twelfth and thirteenth centuries; and the earliest medical body in Ireland, of whose incorporation I have been able to discover any record, is the fraternity or guild of the art of barbers, or Guild of St. Mary Magdalene, of the City of Dublin, which was established by royal charter on the 18th of October, in the twenty-fifth year of Henry VI. (1446), for the promotion and exercise of the art of chirurgery. It was to consist of "men as well as women," as brothers and sisters of the guild; to have a master and two wardens for its rule and governance; and to have a common seal, and power to possess lands and tenements, &c. A copy of this charter was in the possession of the Master of the Corporation of Barbers in the year 1747, but appears to have been since lost. No notice of it appears in the Rolls of the Court of Chancery, which are deficient for a few years before and after the date of the grant; nor could any trace of it be found among the records in Bermingham Tower, the Index to which Sir William Betham, with great kindness and courtesy, carefully searched. The foregoing particulars are, however, recited in a charter subsequently granted to the corporation, in the nineteenth year of the reign of Queen Elizabeth, 1576, to which I shall presently more fully allude, and which I was fortunate enough, after considerable search, to find in the possession of Michael Farrell, Esq., of Harcourt-road, the last Master, and one of the last representatives of the Guild in the Common Council of the

(*a*) Willcocks, p. 19.

Corporation of Dublin, whose kindness in allowing me at all times free access to this and other most interesting documents, I am happy to have this opportunity of acknowledging.

It is remarkable that in England the barber surgeons did not receive their incorporation until the first year of the reign of Edward IV., (1461) (*a*). The charter granted to them states that there was a mystery of barbers practising surgery; and recites the mischiefs which arise from ignorance of surgery, and the necessity of superintendence which existed; it incorporates the mystery aforesaid; appoints masters or governors; grants a common seal, the power of acquiring lands to the annual value of five marks, and the superintendence of all surgeons in London and the suburbs, with power of punishing them; and it exempts the members from attendance on juries, and gives them the power to admit, "in dicta Misteria Sirurgica—personas habiles et sufficienter eruditas."

The surgeons were incorporated with the corporation by Act 32 Hen. VIII., c. 42.

It is doubtful whether the Dublin barbers received from Henry VI. the same privileges, such as exemption from juries, as their London brethren did from his successor; but this is a point which may, perhaps, with a few others, be at some future time cleared up by the discovery of the charter, or a copy of it.

The charter of Queen Elizabeth, having recited that of Henry, proceeds: "And we, having maturely considered how useful and necessary it would be for preserving the health of the human body, that there were more persons skilled in the art of chirurgery within the city of Dublin (sickness and infirmities committing vast havock)," &c.; "and because there are now two distinct societies practising the said art and faculty in our city aforesaid, viz., one of barbers and the other of chirur-

(*a*) In Scotland the barber surgeons were incorporated in 1505. London Medical and Physical Journal, vol. xxvii. p. 116.

geons, which said society of chirurgeons is not as yet constituted nor incorporated into any body politick; and it being necessary to blend, joyn, and reduce the said distinct and separate societies of barbers and chirurgeons into one body, that in one close, aggregate, and connected fellowship the art and science of chirurgery may flourish as well in theory as in practice; and as such union would greatly conduce to, and be a means of perfectly learning and exercising the art aforesaid, and assisting both themselves and their present and future apprentices," &c., the charter then goes on to incorporate certain chirurgeons by the name of the Guild of St. Mary Magdalene, and subsequently, at the petition of this society of chirurgeons, and of the Master and Wardens of the Fraternity of Barbers, amalgamates the two into one body corporate, by the title of the "Master, Wardens, and Fraternity of Barbers and Chirurgeons of the Guild of St. Mary Magdalene, within our City of Dublin." It is also granted to the guild that no one within the city and suburbs of Dublin, and franchises thereof, shall exercise any of the arts of chirurgeons or barbers, unless admitted by the master and wardens, and major part of the brethren of the said guild, under a penalty of five pounds for every month of trespass.

It would appear that this corporation for some time used the same coat of arms as the Corporation of Barber-Surgeons of London, "with some small difference, being a note of diminution or subordination." But it being necessary that corporations of different and independent cities, though of like profession, should have some difference in their arms, this corporation, "having no dependence on any other citty," received from "William Roberts, Doctor of the Civil Lawe, Vluester Kinge of Armes of the whole Kingdome of Ireland," &c. &c., by virtue of the power committed to him, and in consideration of services rendered by the corporation to the Crown, the following independent coat of arms, viz.: "Parted by a crosse of England, charged with a lion passant gardant, argent, crowned

or; these two coates armour quartered, *viz. the first* argent, a cheveron gules betwixt three cinquefoyles azure; *the second coate armour* azure, a harpe crowned or; the third as the second; the fourth as the first; *the creast,* on a helme and wreath argent and gules, St. Mary Magdalene, &c. *Mantled* gules; double argent supported by a leopard proper and an Irish greyhound argent, each gorged with a ducal coronet, and standing on a scrowle, with their motto, viz., '✠ Christi, Salus Nostra.' "(*a*)

Mr. Farrell has likewise in his possession a charter granted by James II. to the same corporation; it is dated 10th February, 1687, in the third year of his reign. It commences by reciting the seizing of the franchises, liberties, and privileges of the city of Dublin, by a judgment of the Court of Exchequer, by which the body corporate, as well as "the minor guilds composing the great body corporate were dissolved,"(*b*) and mentions the new creation of the corporation by letters patent, dated 3 James II., Oct. 27, and then goes on to state that, "We, nevertheless, being willing, in order to the promoting of trade and traffick in our new city of Dublin, to renew the guild or corporation of Barbers, of which the barbers, chirurgeons, apothecaryes, and periwig-makers of the city of Dublin

(*a*) See Grant of Arms, in the possession of Michael Farrell, Esq.

(*b*) "In 1686 the Earl of Tyrconnel, then Lord Deputy, had endeavoured to persuade the city to admit Roman Catholics to freedoms and offices in it, contrary to the established laws, that by their means he might obtain a surrender of the charter, and so settle the corporation in the hands of the Roman Catholics. But the Lord Mayor and aldermen having frustrated this design the Earl brought a *quo warranto* against the charter. The Lord Chief Baron Rice would not allow the city so much time to put in their plea as was sufficient to transcribe it with care. In the hurry a mistake was made in the date of one of the charters, which the city discovering prayed leave to amend, but this was denied, and judgment given against the charter upon this defect of pleading, the merits of the case never coming in question. The same way were most other corporations of the kingdom dealth with."—*Whitelaw and Walsh's History of Dublin,* p. 219.

were members, to the intent that the several arts and mistereyes of barber-chirurgeons, apothecaryes, and periwig-makers may be the better exercised," &c., " do constitute one guild or fraternity of the arts," &c., by the name of the Guild or Fraternity of St. Mary Magdalene, to consist of one master, two wardens, and of the brothers of the arts aforesaid, by the name of the Master, Wardens, and Brothers of the arts of Barber-Chirurgeons, Apothecaryes, and Periwig-makers of the Guild or Fraternity of St. Mary Magdalene. William, Earl of Limerick, John Barnwell, Knt., Robert Barnwell, Esq., Richard Archbold, &c., physicians and readers of anatomy, Charles Thompson, Henry Walker, and others, to be the first brothers of the guild. The corporation had power to punish every falsity, fraud, deceit, oppression, extortion, and every other crime committed by barbers, chirurgeons, apothecaryes, or periwig-makers in Dublin, or within six miles of it. They were empowered to inquire into the character of apprentices previously to their being bound: the term of apprenticeship was fixed at seven years. Apprentices were required to enrol themselves within two months after being bound; the indenture of any apprentice otherwise taken to be void: the person taking the apprentice, under such circumstances, was to pay half a mark for the use of the guild. The guild had power to arrest runaway apprentices. They might admit women as members. Some of the members were obliged to take yearly two of the poor boys from the Hospital at Oxmantown (Blue-coat or King's Hospital) for seven years.

Thus while no mention is made of the apothecary in the charter of Elizabeth, that of James states that the apothecaries of Dublin were before this time an integral part of the corporation of barber-surgeons, and they were subsequently treated as such; for after they had been, in the reign of George II., constituted a distinct corporation, two of the four representatives in Common Council, previously belonging to the barber-surgeons, were taken from them, and given to the new corpo-

ration of apothecaries,—a measure at the time vehemently opposed by the barbers, and the repeal of which they afterwards sought in vain.

Keogh, in the Preface to his Botanologia Universalis Hibernica (published in 1735), urging the advantages of using indigenous, instead of exotic plants, in medicine, says:

"In the primitive or ancient times there were here no druggists' or apothecaries' shops, no foreign drugs brought hither; but the natives made use of the medicinal preparations of their own country, by which means they prolonged their lives to the very extremity of old age, and dropped, like ripe fruit, with a gentle decay. We did not hear of druggists or apothecaries before the flood (the antediluvians were unacquainted with them), nor yet after the flood for a considerable time,—*nay, in this very kingdom there were scarcely two in a province a hundred years ago*(*a*), yet the people then lived to very advanced years."

From these premises, I think, it is evident that the apothecary profession sprang up in Ireland during the interval which elapsed between the granting of the charter by Elizabeth in 1576 and that of James in 1687, and that it and the profession of surgery have, in this country, had a common origin; and it

(*a*) Evidence of the existence of apothecaries in different parts of Ireland, at a period a little subsequent to the time alluded to by Keogh, is afforded by penny-tokens issued by the following apothecaries in the seventeenth century:

1. Gerrard Colley, at Red Cross, in High-street, Dublin, Apothecary.
2. Henry Bollardt, Apoticary, in Dublin, 1654.
3. Henry Bollardt, Apoticary, in Dublin, 1663.
4. Henry Rugge, Apothecary, in Castle-street, Dub.
5. Marke Quine, Apothycary, in Dublin, 1654.
6. Ro. Nellson, of Dunganon, Apothecary.
7. Richard Pearce, of Limrick, Apothecar, 1668.

All the above tokens are in Dr. Aquilla Smith's cabinet, with the exception of the Dungannon token, which is in the Royal Irish Academy collection.

will appear that their interests were for many years subsequent to the latter date identical,—their governing body the same. In Scotland they originated in the same manner, and have never been disunited; the diploma of the Royal College of Surgeons is a license to practice pharmacy as well as surgery; and there is no Apothecaries' Company in Edinburgh(*a*).

The Charter granted by William and Mary, in the fourth year of their reign(*b*), to the King's and Queen's College of Physicians in Ireland, empowered the College to examine all persons intending to become apprentices to apothecaries; these apprentices were required to be well skilled in the Latin tongue; and apothecaries taking them without this previous examination were liable to a penalty of £20. By the same charter none were to be allowed to practise physic in Dublin, or within seven miles thereof, without the license of the College, under a penalty of £10 per month. The College had also the power of entering apothecaries' shops, examining the drugs, and of burning and destroying such as they found unfit for use; they could also examine the apothecaries themselves upon oath, if they thought necessary.

This charter appears to have been ineffective, for we find the College, on the 20th of November, 1695, applying to the House of Commons(*c*) for its confirmation by Act of Parliament; and their petition was referred to a committee appointed to prepare the heads of a bill for the purpose, who were also instructed to report what fees ought to be allowed the physicians. On the 23rd November a counter-petition was presented from the corporation of barber-chirurgeons and apothecaries,

(*a*) " The surgeons of the Edinburgh College are, in fact, qualified as general practitioners, and from this body are the general practitioners of Scotland exclusively derived."—*Ed. Med. Surg. Journal*, vol. xiv. p. 11.

For the union of Chirurgery and Pharmacy which existed in Edinburgh, about 1700, see Ed. Med. Surg. Journal, vol. iii. p. 379.

(*b*) 12 Oct. 1692.

(*c*) Journals of the Irish House of Commons, vol. ii. p. 117.

stating that Henry VI. had, by royal charter, granted to them, and persons approved by them, the exclusive right of practising chirurgery in Dublin, which privilege had been confirmed by Queen Elizabeth. They then allude to the penal clauses in the physicians' charter, which restrict the practice of physic and preparation of medicines to the licentiates of the College(*a*), and impose fines upon any "who shall presume, contrary to said charter, to practise physic, or administer or prepare any internal medicine;" and represent that surgical cures cannot be completed without the use of internal medicines; and that the poorest people, who are unable to fee physicians, are the most liable to accidents requiring the assistance of the surgeon; they state that many surgeons prepare their own medicines, both as a matter of convenience and for the instruction of their apprentices; and point out the necessity which would arise, of having in every ship, and in every regiment, a physician, surgeon, and apothecary, if the surgeons (in whose charge the lives of His Majesty's army and navy, and of most of those who sail in merchant ships, were placed) should be debarred from the practice of physic, adding, that now the surgeon and apothecary, for little or no charge, often relieve and cure those who cannot fee a physician(*b*) They finally allude to the frustration, in consequence of the opposition of the surgeons, of a similar attempt on the part of the London physicians; and showing that the "chirurgeons in all parts of England, and also apothecaries, freely practise physic

(*a*) The words of the petition are "That the Physicians of this City have obtained a charter from His Majesty, thereby prohibiting and disabling all persons whatsoever, unless such as are approved and *licensed* by them from practising physic or administering any internal medicine, or *preparing any medicinal compositions*," &c. It does not appear from the charter that the College were authorized to give a license for the latter purpose, but they had power to "supervise, examine, survey, correct, and punish all apothecaries, druggists," &c.

(*b*) Adam Smith, in his Wealth of Nations (1776), book i. chap. 10, calls the apothecary "the physician of the poor in all cases, and of the rich where the distress or danger is not very great."

as well as surgery and pharmacy," conclude by urging how disadvantageous the restraining them (the petitioners) from the practice of physic would be to all His Majesty's subjects; and praying that the physicians' charter might be produced to the House, and that the petitioners might be heard by counsel against the Bill.

It was resolved that the corporation should be heard by counsel(*a*), and the Bill was dropped.

A committee was appointed in 1698 to prepare a bill to regulate the practice of physic in Ireland, and in 1703(*b*) another was named to bring in the heads of a Bill " to regulate the practice of physic and chirurgery, and of apothecaries, in the city of Dublin."

In 1711 the corporation resolved to prosecute Thomas M'Awee for " setting up a shop, and exercising the trade and mystery of an apothecary or surgeon," without being free of their body; and expressed their determination to punish all who should be guilty of a similar offence(*c*).

From these extracts it would appear that at the close of the seventeenth century both surgeons and apothecaries were general practitioners, the former practising physic and surgery, and compounding for their own patients, while the latter, in addition to practising physic, kept open shop. Both seem to have received a low rate of remuneration, while the physician, who probably confined himself to the practice of physic, was highly paid.

The former attempts on the part of the College to obtain powers from Parliament had evidently been unsuccessful; for, in 1725(*d*), a petition of the President and Fellows was presented, setting forth that the charter granted to them by William and Mary had been found insufficient "to restrain unskilful, illiterate persons from practising physic; and that the abuses

(*a*) Journals of the Irish House of Commons, vol. ii. p. 125.
(*b*) Ibid. page 322. (*c*) Transaction Book, July 16, 1711.
(*d*) Journals of the House of Commons, vol. iii. p. 429.

intended to be reformed in the practice of physic and making and selling of drugs had greatly increased." In accordance with the prayer of the petition, a Bill was brought in, petitioned against, as usual, by several apothecaries, and by the corporation, and eventually defeated.

In the year 1735, however, an Act received the sanction of the Legislature, "for preventing frauds and abuses in the making and vending unsound, adulterated, and bad drugs and medicines."(*a*) It provided that four inspectors of apothecaries' shops should be annually appointed by the College of Physicians, to act together with two apothecaries of good repute, or, should the latter refuse, then without them, with power to burn or otherwise destroy any unsound drugs which might occur to them in their inspection: penalty for obstruction, £10. And for the more easy carrying out this search, all apothecaries, chemists, and druggists were to enrol themselves with the Registrar of the College of Physicians before the 1st of September, 1736, and to pay a fee of one shilling for registration, otherwise they were to be considered unlawful professors of the art or mystery.

It was also provided that no person who had not before the 1st of May, 1736, exercised the trade or mystery of an apothecary, chemist, or druggist, should, within the city or liberties of Dublin, or within seven miles thereof, follow any branch of said art, mystery, trade, or occupation, until he had served an apprenticeship of five years at the least, and lodged with the Registrar of the College of Physicians a certificate from his master, or, in case of his master's death or refusal, from two others of the same trade, of his having served five years, and of his being fit and able to exercise his trade and mystery: penalty, £5 per month.

Every physician, surgeon, or other person taking on him-

(*a*) Irish Statutes, vol. vi. p. 203; 9 Geo. II. c. 10.

self to prescribe medicines, was to sign the prescription or recipe with his name or initials; and to express the quantity of all drugs in words at length and not by marks, under a penalty of 40*s.* for every omission.

The penalties under this Act were recoverable in a summary way before the Lord Mayor and Recorder of the City of Dublin.

Any apothecary altering a prescription without stating on the label that he could not procure the medicine changed, and also what he had substituted for it, was liable to a penalty of 40*s.*

This Act was originally intended to remain in force for three years, but it was several times renewed, and lastly, on the 1st of May, 1749, it was renewed for seven years, "and to the end of the then next session of Parliament."

By 19 Geo. II. c. 15, power was given to the inspectors under this Act to examine upon oath the journeymen, servants, and apprentices of apothecaries as to the quantities and qualities of drugs on the premises; but this power was repealed by 21 Geo. II. c. 7.

The corporation of apothecaries, or guild of Saint Luke, received its charter from George the Second, on the 18th September, 1745, in compliance with the prayer of a petition presented by Aldermen William Walker, Robert King, and Thomas Baker, Henry O'Hara, and others, apothecaries, in which they represented the frequent frauds and abuses imposed on the King's lieges, in different parts of Ireland, through the ignorance and unskilfulness of pretenders to the art of the apothecary, for the preventing and correcting of which no sufficient rules had yet been laid down.

This petition was referred to the College of Physicians for their opinion, who reported that the incorporation of the apothecaries might be useful, provided no power were given them to make by-laws respecting the composition of medicines with-

out the previous approval of the College, and that the powers vested in the College by the Act of 1735 should remain undisturbed.

The charter was accordingly granted, in consideration of the number of apothecaries in the city and suburbs being so great as to require the enactment of "reasonable and convenient orders for their rule and government."

A master, two wardens, and thirteen assistants, were to be elected yearly on the 18th of October, and were to have the power of making by-laws for the governance of the members and other apothecaries in Dublin. They had power to impose penalties on offenders, and the officers of the corporation were exempted from serving on juries, and from filling parish offices.

The meetings, with the exception of the first (which took place at the Mayoralty House, on the 25th of April, 1747), were held in the hall of the corporation, Back-lane, until 1765, after which they were held at the house of the master for the time being, until the opening of the Apothecaries' Hall, in 1791. Since its establishment the corporation has always met at the Hall.

The committees of the corporation usually, as was the custom in those days, met at taverns, and, consequently, the names of many of these are preserved in the Transaction Book(*a*).

Such apothecaries as were not free of the corporation were, on proper application, allowed to follow the profession as quarter brothers, and were obliged to contribute a certain sum quarterly to the funds. This system of quarterage—a tax imposed by the various guilds on those who followed their respective trades—was abolished by Parliament in 1782. Those who presumed to follow a trade without being either freemen or quarter-brothers, were called foreigners, and were fined for "intrusion."

(*a*) Rose and Bottle, Dame-street, 1760; Rose Tavern, Castle-street; Bull's Head, Fishamble-street, 1754; Flying Horse, Mountrath-street; Elephant, in Essex-street; Phœnix, in Werburgh-street; Three Stags' Head, Eustace-street; Carteret's Head, Castle-street, 1769.

The apothecaries endeavoured to make the distillers pay quarterage for manufacturing "bryony water,"(*a*) and "hot cinnamon water,"(*b*) but seem to have failed in the attempt.

In 1751 the apothecaries were required by the College of Physicians to use in future the troy weights. I have not been able to ascertain, either from the books of the College or those of the corporation, what weights had been in use previously to 1751.

The franchises, or triennial perambulations of the city boundaries, were a constant source of dispute between the apothecaries and the civic authorities; the former considering "their necessary attendances in the way of their profession" a sufficient excuse for their non-attendance; the latter endeavouring to compel them to take part in the procession.

In 1755 the corporation presented Dr. Constantine Barber, Professor of Pharmacy in the University, with his freedom.

They exercised a general superintendence over matters relating to the profession: thus we find them at one time punishing "the fraud of vending rudon(*c*) instead of senna;" at another (December, 1756), giving notice by public advertisement, that large quantities of a bark imported from North America had been sold in London as Jesuits' bark, which it resembled in

(*a*) Spirit of wine, distilled from bryony root and several other ingredients. According to Quincy (1729), "a very untoothsome composition, but admirably well suited to the intention of an hysterick." It appears, however, to have had very Protean properties, for he tells us further, that it "is very forcing upon the uterus, which makes it given to promote delivery," &c.; and "is likewise good against convulsions in children, and of service in any nervous complaint in either sex."

(*b*) Hot it certainly must have been: "Take of cinnamon, lb. i.; French brandy, 1 gallon; distil lb. x."—(Quincy.)

(*c*) I have searched several old botanical lists and pharmacopœias in vain for this word; the only name which resembles it is "extractum rudii," described in Fox's Medical Dictionary as being composed of hellebore, colocynth, aloes, scammony, vitriolated tartar, and oil of cloves. Perhaps this drastic cathartic may have been substituted for some preparation of senna.

appearance, though not in taste, and cautioning dispensers of medicine against it.

In the proceedings of the 25th of June, 1761, appears the first notice of an intention to establish an Apothecaries' Hall, which, thirty years later, less by one day, commenced its operations. The Master, Samuel Borrowes, suggested the erection of a laboratory and public hall. The question was, however, adjourned, on account of an insufficient attendance of members.

In the same year, a bill, which is still in force, and under which the inspectors of apothecaries' shops are appointed by the College of Physicians(*a*), was brought in by the celebrated Dr. Lucas, and from him called Lucas's Act(*b*). It gives the College the power to enlarge the number of its Fellows; to appoint four inspectors of apothecaries' shops in Dublin and within ten miles of it; and to require the corporation of apothecaries to elect two assistants, whose co-operation is not, however, absolutely necessary, as, in case of non-compliance, the college inspectors may proceed without them. Unsound drugs may be destroyed by the inspector, but the owner has the power of appealing to the College at large; if, however, the judgment of the inspectors be confirmed on the appeal, the unsound drugs and containing vessels are to be destroyed before the owner's door. Penalty for obstruction, £20. By the eleventh section the college is empowered to

(*a*) 1 Geo. III. c. 14, made perpetual by 30 Geo. III. c. 45, s. 11, anno 1790, entitled, "An Act for preventing Frauds and Abuses in the vending, preparing, and administering Drugs and Medicines."

(*b*) At the time of its passing Dr. Lucas was Member for the City of Dublin, and kept an apothecary's shop in Charles-street. Having had a quarrel with the College of Physicians, he revenged himself in a singular manner. He obliterated all the lables of his shop, and disguised sundry substances, so as to make them resemble different kinds of medicines. When the inspecting physicians came to examine, they were exceedingly embarrassed to ascertain the different kinds, and he boasted that they actually acknowledged a substance to be good rhubarb, which he afterwards proved to be toast and turmeric.—*Whitelaw and Walsh's History of Dublin*, vol. ii. p. 749.

frame a pharmacopœia, which all apothecaries are, by the twelfth, compelled to observe, under a penalty of £10 for every offence. Wrong weights and measures are to be destroyed. Penalties are enacted against the substitution by apothecaries of one medicine for another, and also for disguising pills, &c., with copper, brass, Dutch gold, Dutch metal, &c.

Every physician or surgeon prescribing medicine, is to sign the prescription with his name or initials, and with those of his profession, and, if a physician, with the name or initial of the university of which he is a graduate, unless he be a member of the Royal College of Physicians, in which case the initials of his name to be sufficient.

By an Act passed(*a*) in 1763, the minister of a gaol is empowered, in case of sickness of any prisoner, to employ a physician, apothecary, or surgeon, and to pay for medicines prescribed by them or either of them.

The proceedings of the corporation at this period are very devoid of interest. In 1763 they expelled one of their members for endeavouring to procure the transference of their two "numbers"(*b*) to the barber-surgeons. In 1765 a committee was appointed to consider a plan for erecting a laboratory; and in 1766 they presented Dr. Lucas with an address, thanking him for his zealous and spirited conduct in Parliament.

In 1767 an Act(*c*) was passed for directing the application of £7000 granted to the Dublin Society for the encouragement of such trades and manufactures as should be directed by Parliament; and the Society were, by the third section, empowered to appropriate sums not exceeding £250 towards erecting and establishing a "Pharmacopœia Pauperum, for dispensing

(*a*) 3 Geo. III. anno 1763, c. 28, s. 5. "An Act for the better preventing the Severities and unjust Exactions practised by Gaolers against their Prisoners," &c.—*Irish Statutes*, vol. ix. p. 148.

(*b*) The representatives of the corporation in Common Council were called "Numbers."

(*c*) 7 Geo. III. c. 15.

medicines to the poor of the city of Dublin according to the plan of John Wade, chemist."

Wade's "Chymical Elaboratory and Dispensary for the Poor" was accordingly established in Capel-street, for supplying the apothecaries with pure, unadulterated medicines, and for relieving the poor on cheap and easy terms, the plan having been previously honoured with the sanction of "our learned College of Physicians;" and that the Institution "might be rendered as beneficial as possible, and the purity of every composition be established on the surest principles, Mr. Wade devoted his whole attention and industry to chemistry, to which science pharmacy is not only indebted but owes its chief support."(*a*)

From a return made to the Dublin Society, November 1, 1770, it would appear that from the 2nd June, 1768, to 25th October, 1770, 1570 indigent persons were relieved; and that of this number a great part had been attended at their respective habitations, in the most remote parts of the city and its environs, *gratis*.

The object of the institution seems to have been the same as that of the dispensaries established by the London College of Physicians towards the end of the seventeenth century(*b*), viz., to supply the poor with advice without charge, and with medicines at their cost price.

The opening of a depot where apothecaries could be supplied with unadulterated medicines was, in those days, a most important object; and the difficulty of obtaining pure drugs in

(*a*) Pamphlets in the Library of the Royal Dublin Society, s. d. 32, No. 15.

(*b*) It was at first intended that medicine as well as advice should have been given gratis at these establishments, but the College of Physicians found it impossible to carry out this intention. They bound their members to prescribe for the poor gratis; and fifty-three of the fellows subscribed £10 per annum each, and opened three dispensaries, at which the medicine prescribed was sold to the poor at its "intrinsic value." The opposition of the apotheca-

Dublin was one of the principal reasons for establishing the Apothecaries' Hall twenty years later.

Mr. Wade urges the claims of his institution on public support in the following terms: "Reclined on the soft bed of sickness, attended by servants who anticipate the half-delivered command, and fly with joy to execute it, furnished with all the aid that physic can give or her sons administer, the man of opulence may act the sick man with some degree of firmness, and entertain the smiling comforter Hope with some appearance of reason. But stretched on his hard bed of matted flock or wretched straw, in his dirt-built hovel, the whistling winds forcing through the tattered building, and his wife and children crying for bread, and unable to administer the smallest consolation, how shall the poor manufacturer or peasant, wrung

ries to this measure is thus described by Sir S. Garth in his humorous poem, "The Dispensary:"

> "The Faculty of Warwick-lane design,
> If not to storm, at least to undermine;
> Their gates each day ten thousand night-caps crowd,
> And mortars utter their attempts aloud.
> If they should once unmask our mystery,
> Each nurse, e'er long, would be as learned as we,
> Our art exposed to every vulgar eye,
> And none in complaisance to us would die.
> What! if we claim their right t' assassinate,
> Must they needs turn apothecaries strait?
>
> * * * * * * *
>
> Our manufactures now they meanly sell,
> And spightfully the intrinsic value tell."

When the College prosecuted Rose for practising physic, he urged that if apothecaries were thus restrained, the necessity of feeing physicians would be a great oppression to the poor. The College, in reply, quoted their regulations as to prescribing gratis, and brought forward the existence of the above dispensaries, where the poor might have their prescriptions compounded, "for a third, or generally less, of what the apothecaries used to exact for it."

with excruciating torture, support the trying scene, or acquiesce in Heaven's awful visitation?"

In the following session of Parliament Mr. Wade petitioned for a further aid of £250; and having proved before a Committee of the House the great importance and utility of his Dispensary, and that he was in considerable advance for the same, he having relieved upwards of 2000 persons in their various illnesses, he received a further bounty of £250, *nem. con.*

This benevolent man did not confine himself to supplying advice and medicine to the sick and indigent, he frequently enabled them to purchase the necessaries of life, which they must otherwise have been deprived of. Witnessing deplorable scenes of poverty and distress which he could not relieve, he suggested the creation of a tax of one shilling on each house paying not less than £10 rent: this, he said, would be more than sufficient to establish a fund for sick paupers.

He intended to have applied again for further aid, but was given to understand by his friends that the state of the public finances were such as would not allow of any considerable bounties for public purposes.

Still, confident in the merits of his Institution, he looked forward to receive the public aid, and offered, so long as he should be deemed worthy of it, to give his services and attendance gratis "to that most noble charitable institution, the Lying-in Hospital."

His future applications to Parliament appear to have been unsuccessful, for on the 3rd of November, 1783, he presented a petition to Parliament, setting forth that, by his disappointment from the House in 1779, he had been reduced to bankruptcy, but that he since paid 20*s.* in the pound, and praying relief for his expenses in preparing a Dispensary for the poor.

The Report of the committee to whom the petition was referred was favourable, but no vote appears to have resulted from it, and we hear no more of Mr. Wade except that the name of John Wade and John Clarke, both of Capel-street,

"Chymists," are signed to a petition presented to Parliament in 1790, from some physicians, surgeons, chemists, druggists, and apothecaries of Dublin, praying that all might participate in the establishment of the Hall, and that it should not be confined to apothecaries.

I have alluded to the establishment of this institution because it appears to have been the first of its kind in Ireland; secondly, because its founder appears to have been one of those devoted philanthropists whose memory should not be allowed to lapse into oblivion; and thirdly, because, from the reasons given for its establishment, we learn something of the state of the Dublin drug-market at that time, and can the better appreciate the improvements which have since taken place.

In 1768 the Corporation of Apothecaries presented Dr. Lucas with an address of thanks for his diligence and attention in the House of Commons, and for his zeal and spirited conduct, which they considered to have been mainly instrumental in obtaining a law for limiting the duration of Parliament; and, as a testimony of their esteem for his public and professional conduct, they voted him his freedom in a silver box.

Mr. John Giffard obtained his freedom in the October of the same year, and in 1771 he was elected one of the wardens.

We now come to the termination of Dr. Lucas's active career, for we find the corporation assembled on a special summons, 3rd of February, 1772, to appoint a committee to confer with the other corporations relative to the erection of a suitable statue or monument to his memory. This statue is now in the Royal Exchange.

Dr. Lucas was a member of the corporation of barber-surgeons, and his autograph appears frequently in their Transaction Books.

It seems strange that the House of Commons should have met on Christmas Day, yet, from the Journals of the House, it appears that on the 25th of December, 1773, leave was given to bring in a Bill for the better regulating the profession and

practice of chirurgery in Ireland; on the 18th of the following month Surgeon Croker laid the heads of the Bill before the corporation of apothecaries. The Bill was not brought in at that time, but a similar one was introduced in 1775, which, however, was not persevered with.

In June, 1775, Mr. Giffard brought forward a scheme for an application to Parliament for the better regulation of pharmacy in Dublin(*a*).

In the following November a petition was presented to Parliament from John Clarke(*b*), stating that, in consequence of the difficulty in procuring pure chemicals for medical use, he had, at much expense, brought their manufacture to great perfection; that in four years he had made 16,000 lbs. of magnesia alba, in all respects equal to what had been imported at a guinea a pound, and had reduced the price so much that even the consumer did not then pay more than one-third that amount for it; that he had reduced Rochelle salt to one-fourth its former price, and prepared 12,000 lbs. of it; and that, notwithstanding the heavy duty, he had established a considerable export trade to Bristol and London, thus opening a new branch of commerce; and praying the House to assist him in erecting an "apparatus for preparing sal ammoniac and several other articles, for which large sums were annually sent to Italy and Holland."

The committee, to whom the petition had been referred, reported that he had fully proved his allegation, and that he deserved the aid of Parliament.

June 26, 1777. The corporation rescinded an order of March, 1750, by which none but actually practising apothe-

(*a*) In this year a poem entitled The Medical Review was published by Dr. Gilborne, which throws some light upon the relative positions of the three branches of the medical profession at that time. From it we learn that the physicians of Dublin, seventy years ago, thought that the apothecaries were trenching upon their practice. See p. 62.

(*b*) The late Daniel Moore, whose death was recorded in the February Number of this Journal, was nephew and apprentice of Mr. Clarke.

caries were to be members of the guild; the same day they admitted Dr. Mac Bride as an honorary brother; his freedom was presented to him in a silver box with the following inscription: "To Dr. David Mac Bride, from the corporation of apothecaries, as a mark of their esteem." The Rev. James Hastings was admitted and appointed chaplain(*a*). Dr. Frederick Jebb had his honorary freedom presented in a silver box.

A bill was brought into the House of Commons in March, 1778, for the improvement of surgery, by separating the surgeons of this city from the corporation of barber-surgeons, and making them two corporations. The rising reputation of surgery had doubtless rendered this union incongruous. This bill was not persevered with, but on the 11th of February, 1784, the principal surgeons of Dublin were, by royal charter, incorporated as the Royal College of Surgeons in Ireland, a body which rapidly rose to the high position it at present occupies.

Some Acts of Parliament were passed about this time, which, as they affect the apothecary, should be noticed here.

By 17, 18 Geo. III. c. 28, s. 1(*b*), it was enacted that justices of the peace be empowered to appoint an experienced surgeon or apothecary, at a stated salary, not exceeding £10 per annum, to attend each gaol or prison, who shall be directed to report to the justices by whom he is appointed, at each Quarter Sessions, the state of health of the prisoners under his care.

By 26 Geo. III. c. 14, s. 13, any sum not exceeding £15 is allowed to the apothecary for his attending the prisoners and providing medicines for them.

By 26 Geo. III. c. 27, s. 1, a clergyman, surgeon, physician, or apothecary, may be appointed inspector of a gaol, bridewell, or house of correction.

At a meeting held in March, 1783, a resolution was agreed

(*a*) Rev. Dr. M'Donnell had been appointed chaplain in 1763.

(*b*) An Act for preserving the Health of Prisoners in Gaol, and preventing the Gaol Distemper.

to and signed by fifty-five(*a*) apothecaries practising in Dublin, whose names are given in the corporation book, not to employ any assistant who had not served five years.

October 2, 1783. A memorial from the Pharmaceutic Society(*b*) to the corporation was presented, relative to the grievances under which the professional business of an apothecary laboured, particularly as to the inadequate remuneration for professional trouble and attendance in country parts.

A committee was appointed to take the memorial into their consideration, and to report on the next quarter-day, when a number of resolutions were passed, and a scale of charges fixed upon.

In compliance with a request conveyed in a letter received from the College of Physicians, the corporation, in December, 1787, selected four of their members to act as assistants to the committee appointed by the College to prepare a Pharmacopœia Dublinensis(*c*).

19th October, 1789, John Ussher having been elected master, Messrs. Dalton and Daniel Moore, wardens, a proposal was brought forward to establish a Hall in Dublin, on a plan similar to that instituted by the London apothecaries. In

(*a*) There are at present about 120 practising apothecaries in Dublin.

(*b*) I have not been able to discover the Annals of this Society.

(*c*) The idea of preparing a Dispensatory for the use of this kingdom was first proposed to the College in 1717-18 by Dr. Cumyng, and several meetings were held on the subject; in 1721 a resolution was passed to recommend the apothecaries of Dublin to use the last London Dispensatory until one for Dublin could be perfected; in 1746, the College published a Dublin edition of the London Dispensatory of 1745; in 1784 a committee was appointed, who, in 1788, took the new London Pharmacopœia as their groundwork; in 1791, some copies of the Pharmacopœia Dublinensis were privately circulated; in 1794, 100 copies of a specimen were distributed among the fellows and licentiates of the College, the heads of the College of Surgeons, the Corporation of Apothecaries, and Apothecaries' Hall; in 1805, copies of another specimen were sent to each member; in 1807, the first Dublin Pharmacopœia appeared; in 1826, a second was published; and a third is now (1848) in preparation.

January it was resolved to confer with the College of Physicians as to the utility of the measure; and in the following month leave was given by the House of Commons to introduce a Bill for the purpose. Pending this measure a committee of seven was appointed to examine persons seeking to become assistants or apprentices.

In April, 1790, Dr. Percival, Professor of Chemistry in the University, was admitted an honorary member.

Several physicians, surgeons, apothecaries, chemists, and druggists, had petitioned Parliament to allow all to participate in the formation of the Hall; and a counter-petition was presented by the corporation, praying, for various reasons, that all except apothecaries might be excluded; but in answer to a memorial from the externs, they expressed their willingness to admit as subscribers on equal terms those who were not free of the corporation, provided the privilege should be restricted to apothecaries. The counter-petition of the corporation having been submitted to the committee on the state of pharmacy, they reported that the establishment of a Hall, to consist of practising apothecaries only, would be a measure of great public utility, and that the examination of candidates should be vested in the directors appointed by the proprietors.

A general meeting was held in February, at which thirty-seven members were present: Henry Hunt, of Henry-street, was elected to be named in the Bill as first governor; Anthony Thompson, as first deputy-governor; John Ussher, of Dame-street, was appointed treasurer; and Daniel Moore, of Grafton-street, secretary. It was also resolved to seek the introduction of a clause in the Bill to relieve the profession from attendance upon juries, but this attempt, if made, was unsuccessful(*a*).

(*a*) A remarkable difference existed until lately, in this respect, between the law in England and Ireland. In England members of the College of Physicians and Surgeons, and apothecaries who had served an apprenticeship for seven years, were, by 6 & 7 Will. III., 1694 (made perpetual in the 9 Geo. I.), exempted from serving upon juries, and from filling parish and

The Bill was introduced in March, and, having received the Royal assent, came into operation on the 24th June, 1791. The corporation of Apothecaries' Hall was to consist of a governor, deputy-governor, thirteen directors (elected annually on 1st August), and others, subscribers of £100 each; with the proviso that the company should not at any one time consist of more than sixty members, who were to be either "judicious apothecaries," resident in the city, liberties, or suburbs of Dublin, or persons who had been so for seven years. Every member to be sworn before voting at any general court. Officers, agents, and servants to be sworn. No apprentice, foreman, or shopman to be taken by any apothecary until he be examined by the governors and directors, of whom five to be a quorum; if rejected, the candidate cannot be examined again for six months; and if rejected a second time, he can appeal, within ten days, to the general court, i. e. the subscribers at large, of whom fifteen to be a quorum. In like manner persons are to be examined before opening shop or acting as apothecaries, and these have a like power of appeal. If the candidate be rejected three times, he can appeal to the College of Physicians, who are empowered to affirm or reverse the decision of the examiners. Ten shillings to be charged for the certificate to open shop, and five shillings for one to become an assistant or apprentice. No apothecary to take an apprentice for less than seven years, nor to keep arsenic, oils, or colours where medicines are compounded(*a*).

ward offices; but no such law existed in Ireland. Members of the College of Physicians and Surgeons in Ireland have, by their respective charters, privileges similar to those conferred by Statute on the profession in England, and they and "all apothecaries certificated by the Court of Examiners of the Apothecaries' Hall, Dublin," are, by 3 & 4 Will. IV. c. 91, exempted from serving upon juries. In Ireland, therefore, apothecaries, with the exception of the officers of the corporation of 1745, are still liable to serve as churchwardens and to fill other parish offices.

(*a*) 31 Geo. III. c. 34. "An Act for the more effectually preserving the Health of His Majesty's Subjects, for erecting an Apothecaries' Hall in the

The first general meeting of the subscribers after the passing of the Act of Incorporation, was held at the Surgeons' Theatre in Mercer-street; the oaths directed by the Act having been taken, a vote of thanks was passed to the Royal College of Surgeons for granting the corporation permission to meet at their theatre until a proper Hall should be provided. On the 28th May a committee was appointed to consider the best mode of conducting the examinations of apprentices, assistants, and apothecaries, and to prepare a seal for the company, with the motto, "To preserve health and improve pharmacy."

Having thus endeavoured to sketch the history of pharmacy in Ireland, from its origin as a distinct branch of medicine, to the establishment of the body which now presides over it, I shall close this paper by alluding to a curious coincidence, which looks back, as it were, on the times of which I have been speaking, namely, that the school of the Hall, erected some years since in Cecilia-street, stands upon the ground occupied in 1684 by the Dublin Philosophical Society, when, according to Mr. William Molyneaux(*a*), they had "a fair room in Crow's Nest, off Dame-street, which belongs to one Wetherel, an apothecary, where we have a fair garden for plants," and where the Society, it appears, built a laboratory. Having been subsequently for a time devoted to the dramatic Muse, this locality has, in a measure, returned to its original use,—a laboratory again stands where Thalia reigned, and the site belongs not to one, but to many apothecaries.

While the foregoing was passing through the Press I found in Farr's Medical Annual (1839) some observations which may illustrate the admission of "women as well as men," to the fra-

City of Dublin, and regulating the Profession of an Apothecary throughout the Kingdom of Ireland."

(*a*) See the Editor's preface to the New Series of this journal, p. xii. I would also direct the reader's attention to Dr. Gray's "Report on the Bill for Regulating the Profession of Physic and Surgery, with Observations on Medical Education." Dublin, Browne, 1845.

ternity of barber-surgeons, under the charters of Henry, Elizabeth, and James. In a History of the Medical Profession, published in that work, the writer, having shown from Tacitus(*a*) that among the ancient Germans the women followed the armies to the field, and dressed the wounds of the combatants, "Ad matres, ad conjuges vulnera ferunt; nec illæ numerare aut exigere plagas pavent," remarks that "the ladies sustain the fame of their German mothers, and figure not unfrequently as surgeons in the romances of the twelfth and thirteenth centuries, as well as in the poems of Ariosto, Tasso, Spenser, and later bards. The following passage occurs in Ywaine and Gawin, written in the reign of Richard II.:

> "'Twa maydens with him thai laft,
> That wele war lered of lechecraft;
> The lordes doghters both thai wore
> That war left to kepe hym thore,
> Thai heled him everilka wound.'"(*b*)

Again, in the celebrated *Morte d'Arthur*, we read that the knight, Sir Tristram, having been sorely wounded with a poisoned spear, King Marke sent "after alle manere of leches and surgens, bothe vnto men and wymmen, and there was none that wold behote hym the lyf." A wise lady at last came, and declared that the knight would never be whole till he visited the country whence the venom came, when he should be healed, or else never(*c*). His antagonist having been an Irish knight, he, in pursuance of this advice, repaired to Ireland, where "Kynge Anguysshe for grete fauoure maade Tramtryst to be put in his doughter's ward and kepyng, by cause *she was a noble surgeon.* And whan she had serched hym she fond in the bottome of his wound that therin was poyson, and soo she heled hym within a whyle, and therfore Tramtryst cast

(*a*) *De Moribus Germaniæ*, c. vii.
(*b*) Ancient English Metrical Romances, edited by J. Ritson, p. 115.
(*c*) *Morte d'Arthur*, ed. 1817, by Southey, p. 258.

grete loue to la beale Isoud, for she was at that tyme the fairest mayde and lady of the worlde."(*a*)

"Surgery," adds the same writer "was a part of female education in the days of Queen Elizabeth(*b*); and down to a late period the recipes of cookery and physic were consulted by the provident housewife in the same volume."

Art. IV.—*Observations on the Structure of the Vitreous Humour.* By William Bowman, F. R. S., F. R. C. S. E., Assistant Surgeon to King's College Hospital, and the Royal London Ophthalmic Hospital, &c. &c.

During the last few years considerable attention has been given in Germany to the anatomical structure of the vitreous body. This part has been hitherto loosely held to consist of an extremely delicate filamentous tissue, so interlaced as to inclose cellular spaces, in which the water was supposed to be retained, which slowly escaped when the hyaloid investment was punctured. Not that any anatomist had seen these filaments or cells, but their existence was deduced from the fragmentary form taken by the contained water when frozen, particularly as it afforded a plausible explanation of the more obvious properties of the structure, by a fancied analogy with common areolar tissue. When, however, more perfect means of investigation came to be applied without success to the detection of this filamentary substratum, there was room for new researches of a different kind, with a view to the discovery of some other structural cause of the curious and very peculiar physical properties exhibited by the fresh and healthy vitreous body. Pappenheim appears to have been the first to call attention to the fact that evidence may be obtained of an internal artificial arrangement of parts. He announced that the vitreous

(*a*) B. viii. c. ix. p. 259.

(*b*) Harrison, in the Introduction to Holinshed's Chronicle.

body, treated with a solution of carbonate of potass, exhibited a succession of concentric layers, something like those of an onion(*a*). Brücke, in the following year(*b*), pursued this hint, imagining that there might exist in the substance of the vitreous body a series of membranes capable of anatomical demonstration; and he thought it probable that, by steeping the humour in a solution which would furnish a precipitate as it permeated the vitreous substance, these membranes might arrest the precipitate, and thus become apparent to the eye. He accordingly exposed the surface of the vitreous in a sheep's eye, by removing the sclerotic, choroid, and retina, about as far forward as the ora serrata, and placed it in a concentrated solution of acetate of lead. The surface became immediately covered with a white crust, and when, after some hours, he cut a small slice from the hinder region, he found the cut surface marked with fine milk-white lines, running parallel to the original surface, and presenting throughout the appearance of a finely striped agate. He soon satisfied himself that these stripes proceeded from milk-white layers traversing the vitreous substance in such-wise that the outermost was almost parallel to the retina or hyaloid, and the innermost to the back of the crystalline lens; the intervals being consequently greatest in the axis of the eye, and least towards the zone of Zinn. Here the outer layers were closely approximated, and terminated by uniting with that portion of the hyaloid which lies against the zone; but as respects the middle and inner layers, he was unable to satisfy himself how they ended. Proceeding onwards, he examined the texture of these layers. With the naked eye or an ordinary lens they appeared simply to consist of a milky, transparent membrane, but with a higher magnifying power a fine granular precipitate (probably chloride of lead) became visible in the position of the white lines, and in their intervals either a perfectly transparent space, or else a smaller quantity of a more

(*a*) *Specielle Geweblehre des Auges*, Breslau, 1842, s. 182.
(*b*) *Müller's Archiv.*, 1843, s. 346.

delicate and similar granular deposit. Brücke further observed that the vitreous body thus prepared tore most easily in the direction of these layers; and he noticed that the transparent spaces between the white layers were occupied by an apparently gelatinous mass, similar in constitution to the rest, and were not free spaces containing fluid. He offered no explanation why the aqueous fluid of the vitreous escapes so readily on a puncture, which, he rightly remarks, never happens from a true jelly.

In a subsequent communication(*a*) the same anatomist observes, that the frozen vitreous body, far from affording ground for the idea of a cellular constitution, in reality accords with, and even favours that which he had previously advocated, viz., that the vitreous body is made up of concentric membranes, enclosed one within another. He states that if a well-frozen eye be brought into a warm room, so as to thaw the tunics investing the vitreous, and if these be then carefully removed, the frozen vitreous body appears as a coherent mass of ice, from the surface of which minute flakes may be detached with the point of a scalpel, as the external warmth gradually acts upon it. These flakes he has traced to near the lens, and as they seem to him to have the same direction as those exhibited by the aid of the metallic salt, he concludes that they are the result of the same membraneous stratification which he had before demonstrated.

Another distinguished physiologist has also devoted a paper to this interesting subject(*b*). He made his observations on the eyes of mammalia, after immersing them for at least six months in a solution of chromic acid. He describes somewhat more particularly the concentric layers which had been noticed by the previous authors, and states that if the eye be divided by a median transverse section the appearance is that of an onion

(*a*) *Müller's Archiv.*, 1845, s. 130.

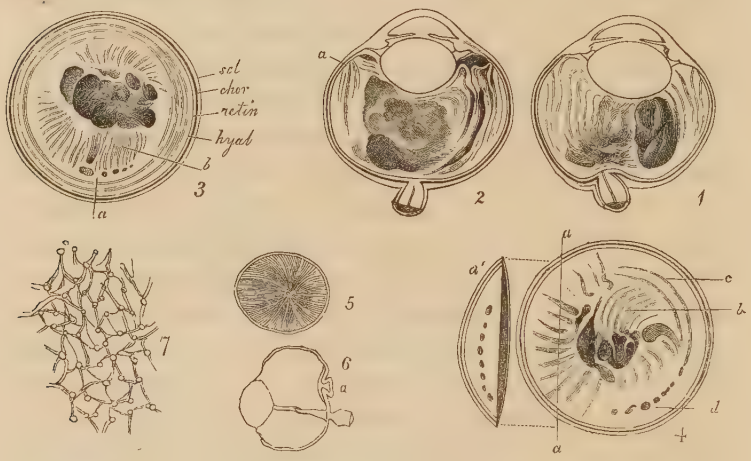
(*b*) *Hannover, Entdeckung des Baues des Glaskörpers, Müller's Archiv.*, 1845.

similarly cut; and this he finds in the cat, dog, ox, and sheep. But in *man* he says that a different structure obtains, rudely comparable to that of an orange, there being segments, of which the convexities are turned outwards, while the angles converge towards, but do not reach the axis of the eye, where the hyaloid canal exists in infants. In two specimens Hannover was able to count 180 rays, and he therefore concludes upon that number of segments: he was unable to ascertain whether each segment had its proper containing membrane, or whether a single membrane was common to two contiguous segments. Examined with the microscope, he finds the walls of the segments to present the aspect of transparent membrane without structure, covered with numberless granules, which he thinks are probably the result of a precipitation. He concludes with an account of the exact arrangement of the parts about the zone of Zinn, into which it is unnecessary here to follow him.

As I am not aware that these researches have been at all prosecuted as yet by any anatomist in this country, and as it seems probable from my own investigations that much difference of opinion is likely to exist with regard to the true interpretation of the appearances which have been above briefly described, I am desirous to communicate in a simple form the result of my own observations on the vitreous humour of man and other mammalia, and of birds and fishes. In doing so I am very sensible how much is still wanted to render them complete.

Having more than a year ago placed several *human* eyes, as fresh as possible (i. e. within twenty-four hours after death), and which had been removed from the orbits with special care, to avoid compression of the humours, in dilute solution of chromic acid (the strength indicated by a light straw colour), I soon found them to have become distended and tense, and the outer coat hardened, and I recently made sections of them in various directions, with a very sharp knife, taking care in making the sections that the globes were not squeezed or cut

unevenly. The best marked examples are delineated in figs. 1 to 7(*a*).



The vitreous body in all was rendered semi-opaque throughout, but the opacity was more obvious and decided in some

(*a*) Sections of the human vitreous body, made after being immersed for upwards of a year in weak solution of chromic acid. Immersion commenced within twenty-four hours after death, and every care being taken to avoid injury.

Fig. 1.—Horizontal section of the globe. The dark lines in the figure indicate the situation of the white lines in the preparation; in the centre is an irregular cavity.

Fig. 2.—Vertical antero-posterior section of the globe; *a*, white lines running up to the hyaloid at the ora serrata.

Fig. 3.—Vertical transverse section of the globe, anterior half seen from behind. Within the hyaloid concentric light and dark lines are seen; within these, at *a*, are several dark dots, which are tubular spaces cut across, which dip inwards and approach the central irregular cavity in a curved course. The radiating lines, *b*, are dark in the preparation, and the substance is not interrupted where they occur, as far as I could ascertain.

Fig. 4.—Similar section from another eye; posterior half seen from the front. In this figure the shaded parts indicate the darker parts of the preparation; in the centre is an irregular cavity; from this or its vicinity, radiate many lines, most of which are tubular, as I proved by subsequently

directions. Most of the sections dividing the eye into an anterior and posterior half (figs. 3, 4) exhibited faint lines of greater opacity, parallel to the retina, running partly or altogether round the section. These lines were more opaque when the observer looked at them in certain directions, and with a little care it was easy to see that they were the edges of opaque lamellæ which followed the curvature of the retina. In no case did these circular lines extend more than about one-third of the way from the retina to the centre of the vitreous, and when they ceased they were replaced by others of a straight or slightly waved character, which had more or less of a convergent direction towards the centre. In the centre, in all the specimens, was an irregular cavity of variable size apparently formed by breaking up of the tissue. In some specimens,

carrying a second section, *á*, through *a a*. The cause of what a geologist would call the unconformable arrangement of the lines at *b*, I cannot account for: the knife evidently has not produced them. At *c* is a dark line, the cut edge of a layer of the vitreous which has not been whitened like the rest, and which is concentric with the retina; tracing this towards *d* we come to a number of tubes cut across, dipping inwards in a continuation of the same plane.

Fig. 5.—Vertical transverse section of the vitreous humour of a nine months' human fœtus, after immersion for a year in a dilute solution of chromic acid. The hyaloid canal is seen near the centre; and a very obvious radiation of somewhat curved lines from the wall of that canal: the texture was apt to tear in the direction of these lines.

Fig. 6.—Horizontal section of the retina, vitreous humour, and lens of a nine months' fœtal eye, similarly treated. The section is carried through the optic nerve, spot of Sœmmerring, hyaloid canal, and lens: the vitreous humour exhibited an uniform opacity in this section. The spot of Sœmmerring is represented at *a*, where the retina is seen to recede from the vitreous body, and form a follicular pouch with a narrow neck, over which the hyaloid passes without entering; the hyaloid canal has been cut open in its hinder half, while the anterior portion remains tubular on the very surface of the preparation. No stem from the extremity of the optic nerve entering the canal can be distinguished in the actual specimen.

Fig. 7.—Fragment of the vitreous substance of the same eye, seen under a power of 300 diameters.

where the circular lines were deficient, more transparent lines of from one-twentieth to one-eightieth of an inch wide, traversed the otherwise homogeneous substance, from the central cavity or its vicinity towards or even up to the hyaloid. These were straight or slightly curved, and of unequal width, and were proved to be tubular channels by cutting them across, when their orifices became clearly visible. In one specimen there were nearly twenty of these near the surface of the section, and in all probability many more too deep for view. Other tubular spaces were seen in one case (fig. 4 *d*) passing in the curve of the concentric layers.

In the sections carried through the optic nerve and lens, and dividing the eye into an upper and lower, or into two lateral halves (figs. 1, 2), a few lines of greater opacity were seen, preserving a more or less exact parallelism with the cut edge of the retina, and obviously the edges of laminæ more opaque than the rest. A very slight touch with a pin sufficed to tear the vitreous in the direction of these lines, and to convert the laminæ into separate sheets, and this has been done to a slight extent in one of the specimens figured (fig. 2). In these specimens the broken central cavity comes so near the optic nerve that the layers are hardly to be seen there, but in front their disposition is not doubtful. Several, and those the outer ones, run towards the ciliary body, and there seem to approach the very surface of the vitreous near the ora serrata, probably uniting with the hyaloid in contact with the zone of Zinn, as described by Brücke. Then those next within bend inwards towards the margin and back of the lens, of course behind the canal of Petit, and they appear rather to cease in succession at the surface of the lens than to be continued concentrically behind it, though on this point the preparations do not speak positively. Between the layers that pass towards the ora serrata and those inclining to the lens the texture seems less coherent, for in some of the specimens the central cavity has spread here and there in this direction, so as even to reach

the ciliary processes and expose them to view from behind, when the cavity is laid open by a vertical transverse incision.

Viewed with a high power these specimens exhibit no special texture; nothing but a finely granular mass appears, which is merely rather darker and more obscure where the naked eye detects the opaque lines. No definite streak bounds the light and dark spaces; there is no evidence of a true membrane discoverable by the microscope within the hyaloid: as far as we can see, the light and dark layers have the same amorphous structure.

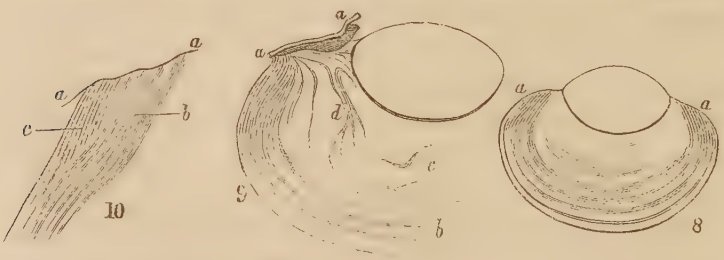
Among the human eyes were those of a still-born fœtus. The vertical transverse section of one of them is represented in fig. 5, to the description of which the reader is referred. It seems to accord with the observations of Hannover. No vestige of layers concentric with the retina was to be found in this or the other eye. The other was cut horizontally, and the knife, fortunately, passed through the optic nerve, spot of Sœmmerring, and hyaloid canal, so as to show all these at once. The description of fig. 6 contains what was observed on this section. That there was no streakiness, no radiating lines in this section, is favourable (taken in conjunction with the appearance of the other section) to Hannover's view of segments or their plates radiating from the central axis. If they really exist, they would probably be invisible in the horizontal section, or in any antero-posterior section running along the axis, because they would be then seen flat-wise, whereas they would be presented edgewise in a transverse section.

With a power of 300 diameters these specimens of the vitreous show a very well-marked but peculiar fibrous texture (fig. 7), not at all unlike that of the enamel pulp described by Dr. Todd and myself(*a*). The fibres join in numerous points,

(*a*) Physiological Anatomy, vol. ii. p. 175.

at which are minute nuclear granules, resembling oil-particles, but not soluble in ether.

Having repeated the experiments of Brücke by immersing the vitreous body of several animals in a strong solution of diacetate of lead, I am enabled to corroborate the accuracy of his descriptions, though not the deductions he has drawn from the phenomena observed. I followed his directions by removing from the fresh eyes of the sheep, lamb, and ox, the sclerotica, choroid, and retina, as far forwards as the ora serrata, using the utmost care to avoid rupture or injury of any kind to the vitreous body: the eyes were then placed in the metallic solution. The hyaloid surface immediately became milky, from precipitation of the lead, and in the course of a short time it was of a dead white, and the vitreous humour began gradually to diminish in size. Some of the specimens were cut into after a few hours' immersion, while others were allowed to remain forty-eight hours in the solution. The time elapsing before the sections were made had no influence on the changes wrought within, except as regards the depth to which they had reached, and the result may therefore be given in a few words. However the vitreous was cut into, white lines were seen on the cut surface, parallel to the exterior; these lines were, there-



fore, the divided edges of white layers concentric with that surface(*a*).

(*a*) *Fig.* 8.—The vitreous and lens cut through their centres in the eye of a lamb which had been steeped for five hours in a solution of diacetate of lead,

In exact accordance with Brücke's account, I found the white lines in the hinder and lateral parts more intense, further asunder, and fewer in number, than in the region of the ciliary body, where they were very fine, delicate, and closely arranged, so as hardly to be visible without the aid of a pocket-glass (see fig. 8). The difficulty of making a clean section at this part, even with a sharp knife, in consequence of the tendency of the structure to be drawn before the blade, caused some uncertainty with regard to the ultimate destination of these lines in the ciliary region. However, after examination of many specimens, I was enabled to feel assured that they passed up to the hyaloid at or in front of the ora serrata, and did not pass round at the back of the lens, in parallelism with the anterior surface of the vitreous body. This being the general arrangement, I noticed in some specimens, of which fig. 9 was the best marked, white layers of irregular character behind the lens at *c*, and others obviously dipping backwards from the side of the lens, behind the canal of Petit, into the central portion of the vitreous, and there breaking up into finer layers, *d*. Others,

after the tunics had been removed from the hyaloid as far forward as the ora serrata. At *a a* the lines are very fine and close, and should be fifteen or twenty in number, and only visible with a lens. The ciliary body is not represented.

Fig. 9.—Eye of an ox. Tunics, removed so as to expose the hyaloid as far forwards as the ora serrata, then immersed in solution of diacetate of lead for forty-eight hours, and cut with a very sharp knife through the centre. *a a*, ciliary body in section; at *b* the dense white lines are thick and wide apart; at *c* are indications of irregular layers of precipitate; at *d* is a white lamella passing from near the lens and subdividing in the substance of the vitreous body. Very close and fine lines run from the hinder part of the ciliary body, or rather from the hyaloid, towards the coarse lines behind; others approach the lens behind the canal of Petit.

Fig. 10.—From the sheep, prepared as fig. 9, drawn on a magnified scale. The fine lines of precipitate in the vitreous opposite the ciliary body: *a a*, hyaloid in contact with the ciliary body; *b*, light and dark lines, each $\frac{1}{600}$ of an inch wide; *c*, still finer lines, which in this specimen were not parallel to those at *b*.

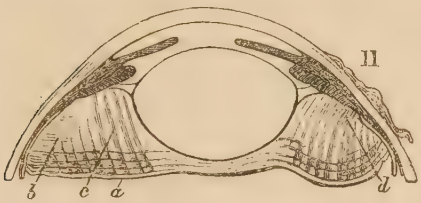
again, followed the posterior wall of the canal of Petit from the ciliary body to the lens. It will be observed that the layer marked *d* corresponds nearly in direction with those which diverge from the ciliary body, and run up to the lens in figs. 1 and 2 from the human eye. In one section through the close and fine lines near the ora serrata I found the appearance delineated in fig. 10, where the lines *c* are inclined at an angle to those at *b*. In the specimens thus prepared there was usually a disposition to tear in the direction of the white lines, especially behind, where the lines were more opaque and wider apart.

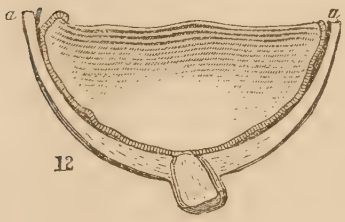
There can be no doubt that the white layers now described are composed of a precipitate of the lead. Examined with a high power the grains of precipitate are obvious enough. They are scattered irregularly in the transparent tissue of the vitreous wherever the solution has penetrated, but in the white layers they are infinitely more abundant. Still no sudden bounding line can be distinguished which would warrant the belief that any membrane like the basement membrane of other parts had intercepted the precipitate. In some parts the grains of the precipitate had arranged themselves on the surface of the more opaque layers in something of an areolar form.

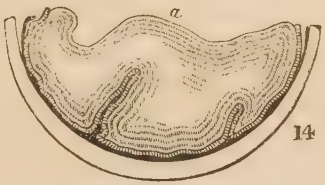
It is easy to understand how an accumulation of a multitude of precipitated particles in a certain plane would, so far as their presence extended, serve to break up the continuity and strength of the vitreous substance in that direction; therefore the splitting or tearing of the tissue along such lines adds nothing to the evidence afforded by the simple deposit of the precipitate for the existence of real lamellæ in the original tissue.

Feeling uncertain whether the layers of precipitate thus parallel to the surface exposed to the salt might not be due to some purely physical cause, I procured some perfectly fresh eyes of oxen and sheep, and, before immersing them in the solution of the diacetate of lead, divided them right across with a very sharp instrument, with the greatest care to avoid dragging

or disturbing the texture of the vitreous humour. Some were divided horizontally, and others into an anterior and posterior half. The halves were then placed in the diacetate for forty-eight hours, some with the vitreous upwards, others downwards. When examined at the end of that time, the cut surface of the vitreous, which had been in contact with the salt, was of a dense white, like that of the uncut surface in the former experiments, and on making an incision into it, white lines were found running parallel with it, just as they had been found running parallel with the uncut surface. To make this more apparent I have added some figures(*a*).







The descriptions appended to these figures will explain the points they are intended to illustrate. The conclusion they

(*a*)*Fig.* 11.—From the ox. This eye was cut vertically into an anterior and posterior half. The anterior half, having lain forty-eight hours in diacetate of lead solution, was divided so as to show the surface delineated. *a*, the line of section previous to immersion in the salt,—parallel to this are several lines of white precipitate, coarse and far apart; *b*, other lines of precipitate, also parallel to the surface which has been exposed to the fluid, but finer and closer; *c*, dense lines of precipitate, taking a different direction, and crossing the others; *d*, similar lines, which seem to run up to the ciliary body, and to be attached there: all the lines indicate cut edges of lamellæ.

Fig. 12.—The eye of an ox, cut into an anterior and posterior half,

lead to is this: that the very beautiful and very elegant layers produced in the vitreous substance by immersion in the salt of lead do not depend on any corresponding series of anatomical membranes, but are due to a physical cause, which will probably be explained more easily by the physico-chemical inquirer than by the anatomist. At first sight, indeed, they seem not to admit of explanation by any of the known laws of imbibition and transmission of fluids through porous substances; and some of my friends well versed in those laws were not able to offer even a probable explanation, when I showed them the preparations. The difference in the closeness of the layers in the hinder region of the vitreous, and in front near the ciliary body, may depend on some real difference in regard to closeness, or compactness, or permeability, or chemical constitution of the vitreous substance in the two situations. Or it may possibly

and the latter then immersed in diacetate of lead for forty-eight hours, and afterwards cut horizontally through the optic nerve, exposing the surface depicted. The knife has passed through many successive planes of precipitate, parallel to the cut surface, *a a*, which has been in contact with the salt.

Fig. 13.—From the sheep. This eye was first cut through vertically from front to back, and the halves separately immersed in solution of diacetate of lead for forty-eight hours; a new section of the outer half was now made horizontally, dividing it into quarters; one of the new surfaces thus exposed is here represented, *a a* being the line of the first cut previous to immersion; the vitreous exhibits numerous fine and close lines, which are the cut edges of layers of precipitate, parallel to the surface which has been in contact with the salt; they gradually diminish in distinctness inwards.

Fig. 14.—The posterior half was cut from the eye of an ox and immersed in diacetate of lead for forty-eight hours. The cut surface of the vitreous humour, when whitened by the salt, was seen to be very irregular as if it had been dragged in making the section; when the specimen was divided again through the centre, so as to expose the surface delineated, the retina was seen thrown into deep folds, obviously in making the former cut; the lines of precipitate were parallel to the retina thus folded, and also to the irregular surface *a*, which had been made by the former cut. By the loosening of the retina from the choroid in the specimen, the fluid had probably found its way nearly equally to the whole surface of the vitreous mass immersed in it.

depend on the different access of the solution to the two parts. But however such variations may be explicable, they are proved, I think, by the last-cited experiments, not to depend on any difference in the number or thickness of actual membranes in the two situations. The fine, close lines in figs. 8 and 9, and the equally fine ones in the same region of fig. 11 *b*, traverse the vitreous substance in directions too dissimilar for us to imagine them to be the exponents of an anatomical lamination; but they are in both cases parallel to the surface previously exposed to the salt.

In his later paper Brücke draws an argument for the existence of the concentric layers as a true structure from the condition of the vitreous when frozen; but in this I confess he appears to me to have been warped by the idea previously in his mind. He says that when the thawing of the frozen mass commences, thin flakes of ice may be picked off from the surface, as though the ice had taken the form of the concentric lamellæ while freezing. For my own part I have been unsuccessful in finding any indication of the concentric flakes in this way. The ice appears to shoot in the substance of the vitreous in a crystalline form, quite irrespective of any structure existing there, and as it melts, layers and angular fragments may be got off it in a variety of directions. I feel sure that the ice never takes the figure of the cup-shaped lamellæ supposed.

I have examined the vitreous humour of the eye of the common fowl after a month's immersion in the solution of chromic acid. After this period of immersion, short as compared with that recommended by Hannover, the vitreous—as shown in the annexed wood-cut, fig. 15(*a*)—was found throughout ren-

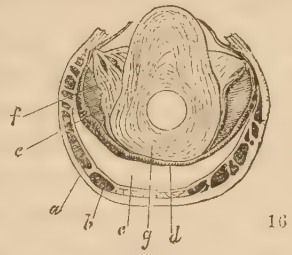
15

(*a*) *Fig.* 15.—Fresh eye of a common fowl, immersed during three weeks in dilute solution of chromic acid; section carried obliquely through, and parallel to, the plates of the pecten; striæ are seen proceeding from the summit of the pecten, chiefly towards the ciliary body, but also towards the lens; others appear to pass from the ciliary body towards the lens.

dered slightly opaque; no concentric lamellæ or layers, in any respect parallel to each other, were discovered, but a very evident arrangement of more opaque fibres was seen extending chiefly from the summit of the pecten towards the ora serrata, and a few towards the lens, while others stretched from the ciliary body to the side of the lens. On attempting to break down the vitreous substance it tore by preference along these fibres, so as to leave them dissected and isolated, and they manifested a certain elasticity. The sides of the pecten also appeared to give off a few fibres, but only in one or two situations. In the bird's eye I found that the vitreous had always undergone partial collapse, and so become separated from the retina during the immersion in the solution. It still, however, adhered to the surface of the pecten and to the ciliary body and lens. A thin exterior layer of the lens was hard and opaque, while all within retained its perfectly fresh characters.

I also placed several eyes of fishes in the same solution of chromic acid, some entire, others with the cornea carefully removed, in order to permit a freer and readier access of the acid, to the vitreous substance. In the former I found, after a month, that the interior parts had not been reached by the acid and that they were destroyed by decomposition. In the others, all the textures were preserved, and in making a section in the axis, the following appearances were observed in the vitreous humour. It passed in layers from the region of the ora serrata to the side and back of the lens. The layers diverged to reach their several destinations, and here and there open spaces between them were cut through, which, though possibly the result of the mode of preparation, yet showed the tendency of the structure to split in the direction of the layers. The lamination of the structure was exceedingly evident. Some of the anterior layers, instead of proceeding from the junction of the choroid and iris, which in this eye corresponds with the anterior border of the retina, were derived at successive distances from the suspensory ligament of the lens, which bounds the

vitreous in front, extending from the junction of the choroid and the iris to the side of the lens. The explanation of fig. 16, here represented, will further interpret the appearance(*a*).



16

The researches now described have not been numerous or varied enough to satisfy me with regard to many points which it is still desirable to clear up; but they will serve, I think, to place in its true light the remarkable phenomenon on which Brücke has founded his view of a very complex and artificial construction of the vitreous body. If I may venture to deduce a conclusion from the experiments I have detailed, I would say that the construction he has described is not in the least supported by the experiments with the salt of lead, which may be made to indicate a lamination in any direction at the pleasure of the anatomist; but, nevertheless, there remains good reason for supposing that there do exist certain layers in the vitreous substance, capable of being rendered visible by art. I think in the sections of the human eye (figs. 1 and 2), the uniformity of the arrangement of the layers disclosed in the neighbourhood of the lens could hardly have been produced, independently of a pre-existing structure, by simple immersion in the chromic acid. The same view is supported to some ex-

(*a*) *Fig.* 16.—Eye of a cod-fish. The cornea was removed, and the eye then immersed in dilute chromic acid for three weeks; a section was then made in the axis of the humour; *a*, sclerotica, within which is a cellular space; *b*, silvery layer; *c*, choroid gland; *d*, pigment and retina; *e*, space between retina and vitreous body, occasioned by the collapse of the latter; *f*, the vitreous body, descending in distinct layers from near the junction of the choroid and iris, and passing to the side and hinder part of the lens; the lens *g*, probably by its weight during the immersion, has pressed out all fluid from the hinder part of the vitreous body, and so, apparently, come into contact with the retina: the hard nucleus of the lens, seen in the centre, is not acted on by the acid; the anterior soft portion has advanced through the pupil.

tent by the appearance of fig. 9, *d*, which could not have been due to a merely physical cause. Then again we have the manifest existence of sets of fibres stretching in determinate directions through the vitreous in the eye of the bird, and the still more decisive lamellated arrangement in the fish, which last affords the most striking and conclusive evidence for the artificial conformation of this exquisitely transparent part that we yet possess. The great solidity and weight of the lens of the fish may, perhaps, be the occasion of this.

It is certainly remarkable that in all specimens of the adult human vitreous humour preserved in chromic acid, a central cavity was discovered on making a section of the eye. Now although this cavity may be regarded as a false appearance, occasioned by the breaking down of the vitreous substance in the central part during the manipulations preceding the immersion in the acid, yet its occurrence in every specimen would seem to indicate that this portion was of a more fragile consistency than the rest, since it is more remote from sources of injury. The cavity could hardly be due to this portion having had time to decompose before being reached by the chromic acid, because the permeation of the whole mass would, probably, be sufficiently rapid to anticipate such a change.

I may observe, in conclusion, that in a case of phlebitic ophthalmitis, in which the vitreous substance was filled by inflammatory exudation corpuscles, the yellow colour derived from the deposit gave no indication of lamellæ, but made exceedingly evident a flattened cavity in the central part of the vitreous humour, capable of containing a pea.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Females and their Diseases. A Series of Letters to his Class. By Charles D. Meigs, M. D., Professor of Midwifery and the Diseases of Children in the Jefferson Medical College at Philadelphia. Philadelphia, Lea & Blanchard. 8vo. pp. 700.

There are two periods of his life when a medical man may advantageously write a book. The first is at the commencement, whilst waiting for practice, before he has attained the confidence of the public. This is a weary time for a young man, but it may be made most useful to himself and beneficial to the profession, if he possess industry sufficient to pursue definite researches among the records of the science, and judgment and method enough to arrange the results clearly and lay them before the public. Isolated facts, scattered essays, and forgotten monographs, may thus be collected, classified, and estimated, and conclusions drawn of the greatest advantage, before the writer has been able to add anything from his own experience; whilst to himself the interest and occupation thus induced during the most unpleasant period of medical life are invaluable.

Again, at an advanced period of a physician's career, after long experience and ample enjoyment of public confidence, it seems to us a duty to record the results of that experience. If a man enjoys the benefits of a large practice, he ought to have an earnest desire to bequeath to the profession the knowledge he has gained. Book-learning and the instruction derived from practice are so different, that every one who can, is in duty bound to increase our store of the latter. And how highly are such works prized! Who has not read with avidity the works of Holland, Seymour, Graves, Brodie, Colles, Hamilton, &c.?

Such a work is the volume now before us,—the production of a physician of long standing, great experience, and sound judgment. Dr. Meigs is already well known to the profession

by his Philadelphia Practice of Midwifery, and his translation of Colombat de l'Isere on Diseases of Females; and he has now given to the world his own experience on the latter subject. It comes before us, too, in a somewhat novel form,—in the shape of letters written in a free and familiar style; and although it necessarily involves somewhat less of precision and scientific accuracy, we are not disposed to deny that the book is pleasanter reading: it is, as was intended, something like talking to the author in his library. The volume contains forty-four letters, embracing almost all the diseases to which females are liable, but without any systematic arrangement: beginning with general remarks on the sex and the sexual organs, and then treating of the diseases of the external parts, of the vagina, displacements of the womb, fibrous growths, cancer, physometra, hydrometra, ovarian diseases, puberty, menstruation and its disorders, hysteria, and concluding with the diseases of pregnancy and child-bed.

It would be unjust to the author to attempt an analysis of so extensive a range of subjects in the limits of a review; we prefer selecting one or two diseases, and laying them before our readers as a specimen of the work. Take, for instance, prolapsus uteri, of which Dr. Meigs gives an excellent description, both anatomically and mechanically. In noticing the symptoms he mentions one which is generally omitted,—the amount of neuralgic pain sometimes attendant upon even a slight displacement.

"I have now met with about thirty instances," he says, "in which the most cruel neuralgia of the whole belly, with sensibility equal to that of acute peritonitis, proceeded from a very slight degree of uterine prolapsion. I say so, for when I could not press the bulbs of my fingers ever so lightly on the abdomen without giving great pain, I have found that when I supported the womb on my index finger, pressing it upwards less than half an inch, the woman could not only allow me to touch the abdomen, but even to touch and press it very violently, without complaining. From all this I conclude that much of the pain of prolapsus uteri depends on the pulling or stretching of nerve fibrils, caused by the sinking downwards of that organ."—p. 130.

Dr. Meigs very properly cautions the reader against mistaking slight prolapsus for retroversion, in consequence of the body of the uterus becoming more horizontal as it descends; and he points out the important action of the levator muscles in resisting this displacement. Add to the enfeebled state of these muscles a relaxed state of the vagina, and you have the principal causes of prolapsus. He differs from Dr. Bennett, who attributes it in many cases to engorgement and consequent

increased weight of the cervix. Probably Dr. Bennett has laid too much stress upon this cause, but that it is in some cases a real one we have had positive proof.

"The indication of cure in prolapsus," in accordance with the Professor's views, is, of course, "an indication to cure the vagina;" and the next investigation is as to the value of pessaries, together with a curious notice of ancient authors on the subject from Spach's collection, which is not so rare in this country as Dr. M. has found it in America. Most of the pessaries used in Philadelphia "are of blown glass, and consist of globes from an inch and a half to two inches and a half in diameter, or else of concavo-convex discs about the same sizes." We have tried the glass disc, and with comfort to the patient, as it does not become saturated with the discharge, and is less offensive. But the pessary Dr. M. prefers is one manufactured by Mr. Joseph Warner, of silver gilt. The silver is reduced by hammering to the thinness of letter paper, and then gilt, either by fine gilding or by galvanism, and when finished, a globe of two inches in diameter, thus formed, does not weigh more than two scruples. Of the same material is formed the disc, ring, elytroid, and horse-shoe pessary, &c. Dr. Dewees preferred the disc pessary, Dr. Physick the globe; and whilst admitting the value of any other which will maintain the uterus at a proper level without irritation, Dr. Meigs thinks the globe pessary the most perfect.

The next question is an important one:

"Can a man expect to cure a prolapsus by the use of a pessary? Yes, provided there be no loss of substance. A woman who in labour has lost the perinæum by the effect of laceration or sloughing, may be held to have lost also all useful functions of her levator ani, and there is no hope, therefore, of a permanent cure of the tendency in her to prolapsus; since, in fact, the perinæum, the normal antagonist of the diaphragm and abdominal muscles, is taken away from her, giving to the antagonism alone supreme and unassisted power. Those females, however, who labour under prolapsion from mere descent of the vagina, arising from its relaxation or loss of tonicity, can be cured by the pessary. I take it for granted that every living tissue has an inherent tendency to contract, and when that tendency is not carried out into execution, it is because something resists, antagonizes, prevents it from obeying its law. To support, then, a vagina at its normal elevation within the pelvis, is to take away the resisting, antagonizing, preventing cause, and to allow it with time to recover its normal density and solidity."—p. 173.

We must confess that our experience has not been quite so favourable; to a certain extent, no doubt, the vagina recovers

its contractile power, but beyond that the pessary, from its bulk, becomes an obstacle. After a time the pessary may be left off, and in its place our author recommends the use of the bag or *sachet*, recommended by Levret and the more ancient authorities. This bag of muslin, in shape like a glove finger, and of various sizes, may be filled with bruised galls, oak bark, krameria, matico, &c., worn during the day, and withdrawn at night. Dr. Meigs speaks highly of their usefulness, to which we can also bear witness; they not only afford support but aid in contracting the vagina, and can be used where pessaries would be objectionable. Of the caoutchouc and stem pessaries Dr. Meigs speaks favourably; but objects, and we think with reason, to the horse-shoe pessary, and anticipates no great benefit from the utero-abdominal supporters. As to the propriety of using the pessary the Professor remarks:

"I recommend that you adopt as an invariable rule in medicine, that you will not prescribe nor even sanction its employment, until convinced by actual knowledge that the indication for it is there. I say so, because everybody knows something, however imperfect, about the pessary; and every woman who has a pelvic misery will naturally be disposed to play the quack as to her own case. If the case be one likely to be benefited by it, you ought to allow and recommend it; but that you cannot know by instinct. Inquire, examine for yourself, and if there be sensibility, discharges,—and especially discharges of a bad colour,—away with a pernicious instrument, which can only make the sick woman more ill, and bring into discredit a means of relief commended by the united voices of twenty centuries."—p. 188.

Now let us turn to another species of displacement, and one which is exciting some interest at present in consequence of the researches of Beatty, Simpson, P. Smith, &c.—we mean *Retroversion of the Uterus*, which Dr. Meigs regards as "one of the most common of the deviations of the organ met with in practice."

"Retroversion of the womb," he says, "is a case in which the fault—the maladine or pathological fault—is in the round ligaments, and not in the womb itself. Hence, if you intend to cure a woman of retroversion, your intention should have reference rather to the ligamenta rotunda than to the womb. Cut off the round ligaments and you will have retroversion; but the wound and the ligament being united again at the wounded point, the womb will be held up, and there can be no retroversion. Relax, stretch, elongate the ligamenta rotunda, and the womb retroverts; strengthen, shorten, cease to elongate the same ligaments, and the patient is cured. This is the doctrine."—p. 191.

The accident, according to Dr. Meigs' experience, although more frequent in child-bearing women than in others, is far from being uncommon in virgins or those who are not pregnant. The chief exciting cause is an over-distended state of the bladder, and secondary to this the occurrence of tenesmus, premising, however, an enlarged condition of the body or fundus of the uterus, from pregnancy or some other cause.

Generally speaking, the principal distress arises from the inability to void the urine; but if the woman be pregnant, and the bladder be emptied without replacement of the uterus, other and more formidable symptoms arise:

"The disordered womb can, by its nervous connexions with the spinal and sympathetic nerves, disturb and vex any and every organ in the body, from the brain to the massa carnea on the sole of the foot. It can vex the pharynx and œsophagus with spasm or globus; close the jaws through the masseters or temporals; jaundice the blood by its influence on the liver; cause ischuria or diabetes in a moment; bring on constipation or diarrhœa; simulate apoplexy or eclampsia; set the hemispheres in a rage of insanity, or excite the cerebellum to the manifesting of chorea, or abolish the sensorial and motor cords of the spinal marrow: but if in the non-gravid condition the retroverted deviation of the uterus can cause such great derangements, what must be those that attend some of the terrible consequences of retroversion of the gravid womb. They are truly appalling. They consist in all the fruits of complete compression and obstruction of the contents of the pelvis by the growing womb."—p. 197.

We must candidly confess that we are not prepared to agree with the former part of this statement; we have not found symptoms so severe produced by retroversion of the unimpregnated womb, nor the disease itself so frequent. That it may give rise to dragging pain in the groins, to a sense of weight in the pelvis, profuse leucorrhœa, to difficulty of passing water or evacuating the rectum, with some sympathetic distress in other organs—for instance, the breast—we admit; but we have never witnessed the enormous disturbance described by Dr. Meigs.

Of course the remedy is to replace the womb, which, in most cases, may be done with tolerable facility; in difficult cases Dr. Meigs recommends the patient to be placed on her face in bed, with the knees drawn up, until the pelvis is raised as high as possible, and then the manipulation with two fingers in the vagina. He has given a plate of an instrument to be used in carrying forwards the fundus uteri when it cannot be done by the finger. After the reposition of the uterus,—

"When you can venture to employ a pessary, which you cannot well do in the pregnant female, you should adjust one of sufficient

magnitude to produce or extend the vagina. I say extend the vagina, and I say so because there will scarcely be a relapse if you keep the vagina stretched to its full length. I have many times reposited a non-gravid womb that had long been retroverted, and placed beneath it one of Dr. Physick's globe pessaries of two and a half inches diameter. Such a pessary will keep the womb in its place pretty well; but if the round ligaments have lost all their tone, a full bladder, aided by a fit of sneezing, laughing, or straining at stool, will readily overset it again."—p. 216.

In cases of frequent relapse, Dr. Meigs has found great benefit from Dr. Blundell's stem pessary; he expects but little from the disc:

"As for the sponges and other horrid conceits of the sort, they are too detestable to be thought of. I disapprove of the glass ones; when strong, they are too heavy, when light, too frangible. A cork pessary is bad, because the wax that covers it comes off, and leaves the rough cork in contact with the parts. Such contact is dangerous —it is ulceration. Do you expect that I should say something more of those utero-abdominal supporters? I deem them abominable. I have never used and never shall use one of them."—p. 217.

The Professor says nothing of the instrument proposed by Dr. Simpson for supporting the uterus *in situ* by a stem passed into its cavity, and attached at right angles, or nearly so, to a disc in the vagina or stem passing externally, a figure of which appeared in our last Number. That such an instrument is far better calculated for the purpose, if the uterus will bear it, than any of the common pessaries, there can be no doubt.

We feel sure that the profession will do justice to the merits of Dr. Meigs' work, and agree with us that it contains a vast amount of practical knowledge, by one who has accurately observed and retained the experience of many years, and who tells the result in a free, familiar, and pleasant manner. The volume does not pretend to scientific arrangement, and therefore it would be unfair to judge it by that standard; but we are sure that there are few who will not find it pleasanter reading than medical books usually are. There are, undoubtedly, some blemishes, a few grammatical inaccuracies, too frequent employment of words coined for the occasion, or of Latin words anglicised, with which we are not familiar, and which have rather a barbarous sound. We are inclined also to object to the dialogues between the Doctor and his patients; no doubt some of them may be very amusing, but others are very tedious, and all are rather out of place. But our readers shall judge for themselves. In the midst of the chapter on Retroversion the following dialogue occurs,—it speaks for itself:

"I was called some time since to a young woman residing in North-street. When I presented myself to her, I found her lying upon the bed, apparently in pain. It was afternoon.

"'Will you please inform me what it is that has induced you to call for me, Madam?'

"'I am in great pain, Sir.'

"'Where is the pain situated?'

"'In the lower part of the stomach and back.

"'You mean in the lower part of the abdomen, I presume, near the shear-bone or bar-bone?'

"'Yes, Sir.'

"'How long have you suffered from it?'

"'Since the early morning.'

"'Are you married?'

"'Yes, Sir, these six weeks.'

"'What brought the pain on you?'

"'I do not know, Sir; it came on in the car, as I was returning from New York.'

"'Have you any difficulty in making water?'

"'I cannot make a drop, or at least only a few drops pass, with the most violent efforts, and the urgency never ceases; I am suffering dreadfully indeed.'

"'Had you ever such an attack before?'

"'Never.'

"'What is your age?'

"'Twenty-two, Sir.'

"'Are you regular?'

"'No, Sir.'

"'Do you suppose you are *enceinte?*'

"'Yes, Sir?'

"'How long?'

"'About five weeks.'

"'And you never felt this disorder before?'

"'I never felt anything of the sort till to-day.'

"'Have you pain in the back, did you say, too?'

"'Yes, dreadful.'

"'Is that pain chiefly felt about three inches above the lower end of the back-bone?'

"'Exactly there.'

"'You have a retroverted womb, Madam, with retention of urine caused by it.'

"'I do not know what you mean, Sir.'

"'I mean that, as you are pregnant some five weeks, the womb is become much larger than it was before you were married, and it is now turned over backward; in fact, it is topsy-turvy. The pressure of the top of your womb against the lower part of the bowel and back-bone gives you pain in that situation; while the bottom, or rather the point of the womb, is pressed with force against the bladder of urine, vexing and paining it, and stopping the course of

the water, which can only escape drop by drop, while your bladder becomes continually fuller and fuller. It is very full now.'

" 'Why, what in the world is to be done?'

" 'You are to allow me to remedy the difficulty.'

" 'How?'

" 'By replacing the womb in its natural position.'

" 'But how can you do that?'

" 'With my hand.'

" 'I cannot think of such a thing?'

" 'Very well, Madam, I shall have to bid you good afternoon, for I cannot think of anything else. In fact there is nothing else to be done for you.'

" 'Why, I had rather die.'

" 'As you please, Madam; you are the mistress; *ce que femme veut, Dieu le veut;* but I hope you will permit me to say that it would be very silly of you to die, for want of the power to make water, when there is a physician at hand can put you so easily in the way to do it easily.'

" And she resorted to the ladies' resort—tears. After she had comforted herself a little in this way, and come to her calmer reason again—

" 'Will it hurt me, Sir?'

" 'Oh, no; not a bit.'

" 'What am I to do, then, if I must?'

" 'You are to lie on your left side in bed, covered up head and ears with the bed-clothes. You are to draw up your knees very high, and I will cure you in a moment.'

" I washed my hands; I always do that first. I dipped the index finger of the right hand in oil. With its point I felt the gravid bas-fond of the womb looking downwards and forwards in the pelvis, while the os tincæ was cocked up against the urethra above the arch.

" 'Don't bear down now, child! Don't resist the pressure of my hand! I shall not hurt you at all, not in the least.' And so by a gentle, steady, augmented pressure against the bas-fond, pressing it upwards and backwards, I followed the ascending fundus until it suddenly escaped above the promontory, upon which the os uteri looked downwards again, and the organ was reposited.

" 'How do you feel?'

" 'Oh! greatly relieved.'

" 'Sit up and try to make water. I shall retire from your chamber: call me when you are done. Is there a wash-stand in the next chamber?'

" In a few minutes she called me back, thankfully telling me she had made a large quantity of water, and was quite well again.'

" 'Is not this, bad as it is, better than dying?'

" 'O yes, Sir, thank you!'

" 'I think it is. Farewell, Madam. Let me tell you, though, before I go, that if you had made water freely before you started

from New York this morning, you would not have had your womb turned over, for nothing did it but the bladder.'" (Here follows the explanation of an illustrative drawing shown to the patient.)

"'Do you understand it now?'

"'O yes, perfectly.'

"'Take care, then, not to let it get so full again, or it will serve you the same trick a second time.'

"'Yes, Sir.'

"'Farewell, Madam.'

"'Good bye, Sir.'"—p. 198, *et seq.*

Elements of General and Pathological Anatomy. By DAVID CRAIGIE, M. D., F. R. S. E. Second Edition, enlarged, &c. Edinburgh, Adams and Black. 1848. 8vo. pp. 1072.

IN this work the author has undertaken to present his readers with "a view of the present state of professional knowledge in general and pathological anatomy."

Each chapter commences with an exposition of the general anatomy of some one or more of the different textures or organs which in the aggregate constitute the human body, and then goes on to treat of the morbid appearances which the same tissues exhibit under the influence of disease.

This arrangement commends itself to the student, because it affords great facilities for the acquisition of a superficial knowledge of general and morbid anatomy; but we are much mistaken if it be found to furnish "a satisfactory view of the present state of knowledge in these branches of science."

It must be admitted that a preliminary knowledge of general anatomy is absolutely essential to the successful cultivation of pathology, for how can the student who knows not the natural appearances of the healthy tissues recognise the changes wrought upon those tissues by disease? But we must be permitted to doubt the expediency of condensing, within the narrow limits of a single volume, these two important branches of medical science.

The book affords ample evidence of the author's laborious research in the collection of materials; but, enlarged as the field of general anatomy has been of late by microscopic researches, and with the vast additions which, in latter years, morbid anatomy has also received, we are confident that few individuals would now be found fully competent to the task undertaken by Dr. Craigie.

In those parts of the work devoted to general anatomy, some subjects of acknowledged importance are treated in a

very superficial manner, whilst in a few instances there is a tedious prolixity of description, which but ill requites the reader for his trouble in the perusal. Thus the structure of the heart is disposed of in little more than half a page, whilst the description of the nervous centres extends over fifty pages.

We must protest against the entire of the first section of the first chapter of the second book; the style is too pedantic to suit the taste of the present race of students, and practitioners will scarcely comprehend it. Reform in anatomical nomenclature is surely nowhere so much required as in the description of the brain, and yet Dr. Craigie here introduces many of the quaint and ridiculous terms of the Continental schools, instead of resting satisfied with those in ordinary use in Great Britain and Ireland. The following paragraphs may be taken as fair specimens of the style in which the brain is described:

"The commutual or dichotomous region of the convoluted surface is terminated below by a sinuosity which is formed chiefly by a part of the brain, remarkable in appearance and organization. This, which was named by the ancient anatomists the smooth or polished body (σωμα τιλλοιδες, *corpus lœve*), to distinguish it from those surfaces which were formed by a cutting instrument, appears in the form of white fibrous matter passing transversely between the hemispheres; but is also marked by certain longitudinal lines, first correctly represented by Vicq-D'Azyr.

"The most conspicuous of these is that which lies exactly in the middle plane, and which is formed by the meeting of the transverse fibres, of which this body, termed middle or central band (mesolobe of Chaussier, the beam (*der Balken*) of Reil) consists. These fibres, which issue like white parallel lines, exceedingly minute, from the substance of the hemispheres, either stop suddenly or change their direction at this point. Their sudden termination gives rise to an appearance to which the expressive but erring epithet of suture (raphe) has been given. On each side of this other lines are remarked, following the same direction. In general they are situated about three or four lines from the median plane. About its middle, however, a very distinct appearance of lines collected into a considerable bundle may be observed proceeding backwards to its posterior end. As they advance they become more distinct, are about one line and a half broad, and of a greyish colour; at the posterior end of the middle band they diverge somewhat, and passing over this, proceed in a lateral direction downwards, till they are lost about the spot where the limbs of the brain (*crura cerebri*, Die Hirnschenkel) issue from the optic eminences. This forms the inner central or grey portion of the cylindroid eminence.

"The posterior extremity of this body is rounded; and when the membranes have been removed, the surface which forms this rounded end is found to communicate directly with the chamber

named third or middle ventricle. This surface is, in truth, continued forward, and forms the vault or ceiling (*fornix*, Die Zwillingsbinde, the twain band, Reil), a point which, though sufficiently obvious, is never noticed in description, or perspicuously demonstrated. The name of *callous body* and *vault* are applied in the ordinary works, as if they were denominations of different objects, or rather of different bodies. If they are still to be retained, it ought to be stated that they are names applied to opposite surfaces only of the same object."

We entertain some doubts whether the generality of our readers are likely to recognise the "corpus callosum," as the body thus laboriously described; nor do we agree with the author in thinking that the connexion between the posterior reflected extremity of the corpus callosum and the fornix is never noticed by demonstrators of anatomy.

In the pathological department, Dr. Craigie's labours will be more generally appreciated, though here too, like most compilations, his descriptions are very seldom impressive.

The diseased condition of the tracheo-bronchial mucous membrane, to which the artisans of Sheffield are subject, and which results from the inhalation of sand, dust, or metallic particles in minute mechanical division, is well described, and the statistics of the mortality amongst this class of persons afford some curious results. As this topic possesses some novelty to the profession in Ireland, we transcribe our author's description:

"Next to bronchial disease from the presence of foreign bodies may be placed that form of the disease which is the result of the inhalation of sand, dust, or metallic particles in minute mechanical division. This has been already mentioned in a general manner. But it may be proper to advert more particularly to the changes induced in the lungs as presented by the artisans of Sheffield.

"In the town and vicinity of Sheffield two sorts of grinding of edged tools are practised; one, dry grinding on a dry stone, the other, wet grinding on a stone moistened with water. Many articles, as scissors, razors, and penknives, are ground partly on dry stone and partly on the wet stone. Others, as forks and needles, are ground mostly on a dry stone. Table knives are ground principally on a wet stone. Saws, files, and scythes, are ground entirely on a wet stone.

"Dry grinding is most injurious, and tends most directly and effectually to induce bronchial and pulmonary disease, and thereby to abridge the duration of life amongst the grinders. The dry grinders, therefore, are most speedily destroyed. The life of the wet grinder is often prolonged to a considerable age.

"Of 1000 scissors-grinders above twenty years of age, only

twenty attain the age of between fifty and fifty-five years; only ten the age of between sixty-one and sixty-five; and none live beyond the latter age, while of the inhabitants of Sheffield genenerally 224 in 1000 are found living at sixty-five and above, and in the midland counties 413 in 1000. Of artisans in this branch 843 in 1000 die under forty-five years of age.

"With the fork-grinders it is worse. Among 1000 fork-grinders, aged above twenty years, not one attains the age of fifty-nine, while in Sheffield, among 1000 persons, 155 are living at 59. Of these 1000 persons, 472 die between twenty and twenty-nine years, 410 between thirty and thirty-nine ; and the residual 115 are all gone before the age of fifty.

"Among 1000 razor-grinders above twenty years of age, 749 die under forty-one years of age, the rest mostly between forty-one and sixty; between sixty-one and sixty-five, only five are living; and after sixty-five all are gone.

"Of the penknife-grinders, not one in 1000 arrives at the age of sixty; 731 die before the fortieth year; and the rest are all destroyed before the sixtieth year.

"Saw-grinders, file-grinders, and scythe-grinders, who work on the wet stone, are less liable to bronchial disease, and are longer lived. The numbers pursuing saw-grinding are not great. Yet among seventy-eight persons engaged in it in 1843, nine were between sixty and sixty-five, and one died between sixty-six and seventy, and one at seventy-nine.

"The number of scythe-grinders is also not great. In 1843, there were thirty, of these, eight were between forty-one and sixty years of age. Both the saw-grinders and the scythe-grinders are exposed to accidents, sometimes fatal, from the breaking of the stone.

"The lesions which produce this great mortality are of a complicated character. The most common lesions are chronic inflammation, with thickening of the bronchial membrane, enlargement or dilatation of the bronchial tubes, emphysema, and expansion of the pulmonary tissue.

"The bronchial glands are enlarged, or converted into a black, hard, gritty substance, varying in size from half a marble to a large hazel-nut. In dividing these glands the sound emitted is the same as if the scalpel were dividing a soft stone, and the section is black and polished, and grates over the edge of the knife. Such masses are commonly detected in grinders who have belonged to the most destructive branches.

"Similar soft, sectile, gritty, or stony matter, is found in almost every part of the lungs, in portions varying from the size of a currant to that of a bean : adhesions between the pulmonary and costal pleura are also frequent.

"In some instances the lungs present an appearance as if black currants had been distributed through their whole substance, and accompanied with similar bodies, larger in size, but hard and gritty

like them. These currant-like bodies are also observed on the surface of the lungs. As to their nature Dr. Holland gives no opinion; but Dr. C. Fox Favell states that frequent examination has convinced him that they consist of the dilated extremities of veins containing some of the solid constituents of the blood.

"Tubercles are also occasionally found, with their consequences, vomicæ.

"Another state, frequently observed, is engorgement or infiltration of the lungs with a dark-coloured fluid, which is ascribed by Dr. Holland to the inhalation of the fine, black dust floating in the amosphere during the operation of glazing.

"On the mode of production of these lesions, or the order of their succession, observers are not agreed Dr. Arnold Knight and Dr. Holland consider the tracheo-bronchial membrane to be the original and principal seat of the disease, and the tracheo-bronchial irritation to be the primary morbid action, and to give rise to all the other effects,—the dilatation of the bronchi, emphysema, the formation of currant-like bodies, tubercles, pulmonary induration, and pleuritic adhesions.

"Dr. Fox Favell, on the other hand, thinks that the pulmonic tissue, or parenchyma, is the primary and essential seat of the disease,—does not regard the mucous membrane as the original seat of the disease,—and maintains that the organic changes found in the structure of the lungs constitute the essence of the lesion; in short, that all the changes seen in the lungs of the grinders depend on congestion and inflammation of their parenchymatous structure. Dr. Favell, in short, ascribes as much to the position, the labour, and the debauched habits of the grinders, as to the inhalation of the dust or powder."

We beg to refer our readers to Dr. Craigie's description of the morbid condition of the lungs termed arctation and obliteration of the bronchial tubes, in which he has drawn largely from the original memoir of M. Reynaud. This affection is liable to be confounded with phthisis, and therefore deserves more than a passing notice from the reviewer, but our limits preclude us from extracting more than the following outline:

"Arctation, or narrowing of the bronchial tubes, has been already mentioned as one of the effects of bronchial inflammation, recurring repeatedly, and becoming at length chronic. In cases of this kind, these walls forming the tubes are distinctly thickened by effusion, either of blood or lymph, or both, into the submucous tissue, and the capacity of the tube is proportionally diminished. In other instances the presence of indurated or hæmorrhagic portions of lung round small bronchial tubes produces the same diminution in their normal dimensions.

"This sort of obliteration, to which may be referred several lesions of the lungs, takes place both generally or in a space of lung

more or less extensive, and, locally, in one or more bronchial tubes. In the former case the substance of the organ, instead of being vesicular or spongy, becomes solid, compact, and impermeable to the air.

"To the disposition now mentioned is conjoined another, referable to the surface of the lung, and which denotes the presence of the obliteration. This consists in more or less shrivelling of the pulmonic surface at the point corresponding to the seat of the obliteration. From this it is reasonable to infer that the shrivelling is in some manner connected with the bronchial obliteration. It is, indeed, not difficult to understand how the obliteration of a bronchus not remote from the surface of the lung, involving that of the branches issuing from it, must, by the consequent contraction, produce contraction or shrinking of the pulmonic substance, and shrivelling, more or less considerable, of the surface of the organ at the corresponding point.

"These shrivelled spots are easily recognised. The pleura is drawn to one or two points in a series of wrinkles, imperfectly radiated; the surface is perceptibly depressed; and when the part is touched it is found to be solid, adherent, firm, and inelastic.

"The most common seat of these obliterations is the upper lobe of the lung, and especially its apex, a fact of which it is necessary to be aware in distinguishing these obliterated spots from alleged healed tubercular cavities. They have been found, nevertheless, in the lower lobe. Reynaud found the lesion twice in this situation.

"The blood-vessels are not obliterated, except in the minute branches distributed through the indurated portion.

"The solid filaments, the relics of the obliterated tubes, are generally of a deep black colour.

"The causes of obliteration of the bronchial tubes are not positively ascertained. All that is known is this, that obliteration takes place in persons who had laboured under severe, repeated, or long-continued attacks of bronchial inflammation, usually chronic, and those who had attacks of chronic pneumonia.

"Reynaud is inclined to ascribe the occurrence of the lesion to diphtheral or albumino-facient inflammation of the bronchi; and there is no doubt that the bronchial membrane is liable to this form of inflammation, and that this form of inflammation may produce or terminate in obliteration. He admits also that he has met cases of acute pneumonia, with hepatization of the lung, in which the lesion consisted in inflammation which had in all the small bronchi given rise to the formation of false membranes, which filled, more or less accurately, all their cavities."

In concluding our notice of Dr. Craigie's work, we venture to predict, that as a book of reference it will be occasionally consulted by the pathologist with advantage, but that few will adopt it as a systematic treatise on general and pathological anatomy.

Dysphonia Clericorum, or Clergyman's Sore-Throat; its Pathology, Treatment, and Prevention. By JAMES MACKNESS, M. D., Member of the College of Physicians, London; Consulting Physician to the Hastings Dispensary. London, Longman. 1848. 8vo. pp. 125.

IN the fourth volume of our New Series we drew the attention of our readers to a publication by Dr. Horace Green, of New York, in which "Clergyman's Sore-Throat" was made a special subject of investigation; and we laid before them the view which he took of the pathology of that affection, its causes, and treatment. In the work now before us, from the pen of Dr. Mackness, the disease is still further investigated, more especially as it is met with in England, and additional interest is, therefore, given to the subject. This affection of the vocal organs is one of very frequent occurrence among the members of those learned professions in which the voice is frequently called into play, as the bar and the church, causing not only much annoyance, but often completely debarring them from the exercise of their avocations; and thus becoming one of much practical interest to our's, the *less talking* profession.

Dr. Mackness devotes the two first chapters of his treatise to a concise but accurate and well-written description of the anatomy and physiology of the vocal organs, concluding with an account of the effects of irritation and inflammation on the mucous membrane, on its follicles, and on the subjacent tissues.

In the third chapter he considers the causes of *dysphonia clericorum:* in this country it is, he remarks, frequently a much milder affection than that described by Dr. Green as existing in America, very often running its entire course without exhibiting any special affection of the mucous follicles; and he accounts for the fact of the disease being usually associated with follicular ulceration among Dr. Green's countrymen, on the ground of their being very generally the victims of dyspepsia, brought on by their peculiar habits of eating. Restricting, as Dr. Mackness does, his description of the disease to an affection to which public speakers alone are liable, we think his views are perfectly correct; but Dr. Green incorrectly used the appellation "clergyman's sore-throat," for of the cases he narrates not more than one in five were in any way public speakers: and disease of the mucous follicles of the air passages, causing aphonia or dysphonia, is,

we believe, fully as common amongst other persons, not public speakers, in the British Islands as in America.

The chief cause of the malady is, according to Dr. Mackness, *dyspepsia*, an affection to which the members of the clerical and legal professions are peculiarly liable, from their sedentary habits; but the most common exciting cause is, undoubtedly, over-exercise of the vocal organs.

"Not so much," writes our author, "that excessive action which takes place during a temporary,—it may be a rare or solitary effort,—but the long-continued strain which is kept up for a lengthened period, and by which the muscular and tendinous parts of these organs are kept on the constant stretch, without those intervals of rest which occur in common conversation. We all know how difficult it is to hold out the arm from the body in a horizontal posture, even for a few minutes only, without the muscles becoming wearied and painful. The muscles of the vocal organs are, of course, alike influenced by the same law which pertains to the other voluntary muscles. It is easy, then, to understand how necessary it is to the well-being and due administration of any bodily function that rest should alternate with action. The mere exercise of any part of the body, and, of course, of the vocal organs equally with others, even though that exercise may be carried to a high degree, is not in itself calculated to inflict much injury, so long as an adequate interval of rest is allowed between each effort. Exercise only becomes painful when it is a protracted strain without intermission on a set of muscles and their tendinous expansions, without a sufficient interval of relaxation to enable those secretions of the investing membranes to fulfil that office which is appointed by the all-wise Creator to produce a soothing and protective agency."—p. 32.

With reference to the pathology of dysphonia clericorum, it may be, as Dr. Mackness correctly states, simply a nervous affection, when, of course, it is a functional disease; or it may depend on some alteration of structure in the parts which compose the vocal organs. In the former case it is sometimes caused suddenly, by mere mental emotion, but more generally by prolonged mental anxiety; in some instances, however, "it may precede and indicate a more serious disease of the nervous system." When it is caused by alteration of structure, it may depend on simple irritation of the mucous membrane, or on changes of a more lasting and serious character. The latter the author arranges under the following heads:—1. A state of erethism of the mucous membranes from the expansion of their capillaries excited by irritation. 2. Congestion, the diameter of the capillary vessels becoming permanently increased. 3. Serous effusion from the gorged capillaries. 4. Inflammation as a termination of long-continued congestion. 5. The deposi-

tion of adventitious structure in the surrounding parts, or of a yellowish cheesy matter in the follicles of the air passages. 6. Hypertrophy of the mucous glands. 7. Induration of the follicular glands. 8. Morbid secretion of the follicular glands. 9. Ulceration of the follicular glands. 10. Chronic inflammation causing a relaxed and congested condition of the mucous membrane. 11. All those changes confined to the immediate organ of voice, the larynx. The descriptions of the sixth, seventh, eighth, and ninth forms, are given in Dr. Green's treatise.

Dr. Mackness justly lays much stress on the necessity of carefully diagnosing to which of these causes dysphonia, when present, must be referred, as it is thus alone correct views of prognosis and treatment can be obtained; and in the fifth chapter he points out, with much clearness and ability, the symptoms indicative of the different forms of the disease.

In the sixth chapter the prognosis and treatment of the disease are considered. The plan of treatment best adopted to those cases in which the dysphonia is purely functional in the vocal nerves or muscles, is

"Daily exercise in the open air; the administration of mineral and vegetable tonics, and of these, preparations of iron should hold a prominent place; valerian and the fetid gums; stimulating frictions over the larynx; the inhalation of the steam of water, iodine, or chlorine; insufflations of alum or benzoin; cold sea baths or cold shower-baths. Should these means fail, the preparations of strychnia, the use of galvanism, blisters, or setons to the throat. The application of croton oil has also been much recommended in aphonia depending on anæmia, especially in those cases of 'muffled voice,' which are the result of nervous anxiety. Abstinence from public speaking is absolutely indispensable in all cases of aphonia which depend on debility alone; but when the malady originates in mental emotion, or mere nervousness, and is not accompanied by any redness of the fauces, it is desirable to persevere in the exercise of the voice in public until the nervousness is overcome, since in time the organs will regain their tone, more confidence and a better management of the voice be acquired. It must, however, be remembered that this nervous diffidence in speaking is sometimes itself the accompaniment of general debility. It especially affects young men of anxious temperament, who find themselves, perhaps without much previous training, placed down in a populous parish, where there are sick to be visited, children to be instructed, a congregation expecting from them weekly sermons, which require no trifling effort to prepare as well as to deliver, and withal a sense of weighty responsibility, such as attends but few, if any, of the other callings in life. Oppressed by various and contending claims on their time, thoughts, and feelings,—ever seeing something before them which,

with all their efforts, remains undone, unattained,—the bodily powers are debilitated, and the mind is laid open to nervous tremors in the performance of public duty. The vocal organs, being especially called into action, soon manifest by their irregularity the wear and tear of the mental machine. To attempt in such cases to remove the effects without first removing the cause is futile. The patient must be relieved from the labours which have been too much for him, or he will ultimately sink into such a state of general debility and prostration of the nervous system as may require years to remedy."—p. 65.

Where follicular disease is the cause of the dysphonia, Dr. Mackness recommends the use of the solution of nitrate of silver, as proposed by Dr. Green, and which we have described in our review of his book already referred to; but he does not seem to have used it of the same strength, nor to have applied it directly to the interior of the larynx. Since we wrote the review of Dr. Green's book, we have, in numerous cases, employed the solution of nitrate of silver of the strength he advises,—from two scruples to a drachm of the nitrate in an ounce of distilled water,—and with very great benefit: indeed, in treating chronic sore throat now, we never use a weak solution. We have not, however, applied the remedy to the mucous membrane lining the larynx in the manner he proposed, nor do we think there is any occasion to do so; for we have found that, by pressing the saturated sponge against the back of the pharynx, a sort of spasmodic action of the parts is produced, by which a sufficiency of the solution is forced into the laryngeal cavity.

In the seventh and last chapter, Dr. Mackness treats of the prevention of the disease. In it the reader will find excellent and judicious observations as regards hygienic and dietetic measures, education of the voice, &c.

Our object in this short notice of Dr. Mackness's treatise has not been to give any analysis of its contents,—this its truly practical character, combining conciseness with clearness of expression, forbids,—but to bring it under the notice of the profession as a timely and useful addition to English medical literature.

Recent Advances in the Physiology of Motion, the Senses, Generation, and Development. By William Baly, M.D., F.R.S., and William Senhouse Kirkes, M. D. Being a Supplement to the second Volume of Professor Müller's "Elements of Physiology." London, Taylor and Walton. 1848. 8vo. pp. 132.

In the preface to the work before us Dr. Baly states that, after having published his translation of Müller's Physiology, it was his intention that there should follow a supplement or appendix, containing later information on the subjects treated of in the most important part of the second volume, namely, that portion comprising the physiology of "generation and development."

The translator subsequently found it advisable "to extend the original plan of the present work, and to make it supplementary to the entire second volume of 'Müller's Elements,'" by including an account of the more important advances in the "physiology of motion and of the senses."

The subject of ciliary motion is first considered, and some additional information communicated:

"It is found, for example, that this variety of epithelium (the ciliary), besides lining the interior of the nasal cavity, and of the frontal and maxillary sinuses communicating with this cavity, is continued up the lachrymal canal into the lachrymal sac, and is also spread over the mucous surface of both eye-lids, but not over the conjunctiva covering the eye itself. From the posterior part of the nasal cavity the ciliary epithelium passes to the upper part of the pharynx, which it lines to about opposite the lower border of the atlas; it is also spread over the posterior surface of the root of the soft palate, and laterally it is continued to the orifice of the Eustachian tube, up which canal it extends into the cavity of the tympanum.

"It was until recently believed that the ciliary motion is entirely wanting in the urinary apparatus of the vertebrata. But it has been found by Mr. Bowman, that in frogs a layer of ciliary epithelium lines the urinary tubules just at their junction with the Malpighian capsules. No trace of cilia has yet been found in any part of the urinary apparatus of mammalia. M. Rossignol finds that the ciliary epithelium, along the mucous lining of the respiratory passages, ceases at the vesicular structure of the lung, its place in the vesicles themselves being occupied by simple pavement epithelium, composed of roundish or oval cells."—p. 1.

In the next section "the muscular and the allied motions"

are considered, and some interesting new matter relative to the physical, vital, and chemical properties of *arteries* has been introduced. The structure of arteries has at all times received the attention of physiologists; and there are, probably, few subjects upon which a greater diversity of opinion has existed, than the question as to whether arteries are merely elastic tubes, or endowed with a power analogous to muscular contraction. Haller admitted the muscular nature of the middle membrane of the arteries, but, at the same time, when speaking of their alternate dilatation and contraction, asserts that their power of propelling the blood by their contraction "was weak; that he never witnessed its spontaneous exercise, nor could he excite it by mechanical irritation." Verschuir and Hastings advocated the active contraction of the arteries, and succeeded in demonstrating it by means of mechanical irritation. John Hunter, it is well known, was the celebrated advocate for the muscularity of arteries as well as their elasticity. Between these two properties he draws a marked distinction, and maintains that there is an effect produced from stretching an artery which indicates the presence and nature of two substances, namely, the *elastic* and the *muscular*. He believed that the elastic power is greatest in those large arteries nearest to the heart, whilst the muscular power of the smaller arteries is superior to that of the larger. In speaking of the muscular structure of these vessels, he observes: "What the direction of the muscular fibres may be, I never could discover, but should suppose them oblique;" and as to the precise nature of the action of these fibres, he says, that "we know them likewise to be certainly endowed with the power of contraction peculiar to a muscle," and "that this power of muscular contraction acts chiefly in a circular direction." Bichat entertained an opinion decidedly opposed to that of Hunter; he denied that arteries possess any muscular structure whatever, and asserts that when we institute a comparison between the arterial texture and the muscular, we shall find that "they have not a single point in which there is the least analogy." He admits that arteries do possess a certain power of contraction, which he designates by the term "*contractility of the texture*," and which he believes is brought into operation whenever their contained blood is removed from their interior, so as to give rise to a deficiency of the ordinary extension of their coats. Between this, which he considers a physical property, and "*animal contractility*," which is decidedly a vital property resident in the voluntary muscles, and dependent upon the influence which they receive from their supply of nerves, Bichat draws a marked

distinction. This animal contractility, he believes, is totally wanting in the arteries. After having performed a variety of experiments upon the arterial texture, he was led to another conclusion also, namely, that these vessels are destitute of "*irritability;*" that they remain in a passive state, notwithstanding the application of several irritating causes to their textures. Do the arteries, then, possess any power at all in the circulation of the blood? Upon this point Bichat asserts positively, that "the heart is all, and that arteries are essentially *passive;*" that in fact these vessels are remarkable for their want of vital properties, and should be arranged with the cartilaginous, fibrous, and fibro-cartilaginous textures. It must not be forgotten, however, that this eminent physiologist distinctly admits the existence of a certain power in the minute arteries concerned in the processes of secretion, exhalation, and nutrition, and which he denominates "*insensible organic contractility or tone.*" It is, he states, strongly developed in the minute arteries of glands, of the skin, mucous surfaces, &c. As to the amount of influence exercised by this vital property upon the circulation of the blood, he observes:

"From the moment the influence of the heart on the blood contained in these vessels has ceased, that is to say, where the capillary system begins, then the *tone* also begins to influence, not only the nutrition of the vascular parietes, but likewise the circulation performed in that system; it is even exclusively in virtue of the *tonic forces, that circulation, as will be seen, is carried on in these small vessels.* The heart has positively nothing to do with it."

The observations of Dr. Parry are very nearly to the same effect as those of Bichat; he denies "the existence of muscular fibres as a component part of the arterial tunics," but, at the same time, recognises a power in the arteries which he calls *tonicity* or "*vital tonic contractility of the vessels.*" As to the influence which this power exercises on the circulation of the blood, he maintains distinctly, that the arteries do not render "an uniform assistance under circumstances of undisturbed circulation," and that he has never, in any one of his multiplied observations, been able to discover any "*alternate* dilatation or contraction" of the arteries. He admits that in his experiments he has perceived *dilatation* and *contraction*, but that these movements were irregular, often confined to a small space of the artery, and seldom permanent. He comes to the conclusion, therefore, that this vital tonic contractility of the arteries does not produce "the state of undisturbed circulation under the ordinary circumstances of life."

Verschuir and Hastings have succeeded, by the applica-

tion of mechanical irritation to arteries, in producing contraction of these vessels. Thompson has produced the same result by the application of a weak volatile alkali to the smaller arteries in the web of a frog's foot.

Bikker and Van den Bosch have produced the contraction of arteries by means of electricity; and Giulio and Rossi have experienced the same results by means of galvanism. Sir E. Home has observed contraction of the artery to take place on applying an alkali upon the nerve leading to the vessel, although Bichat failed to produce a similar result by the application of galvanism in the same manner.

Schwann entertained pretty nearly the same views as Parry with regard to the tonicity of arteries. By the application of a few drops of cold water, the temperature of which was lower than that of the atmosphere, to the mesentery of the frog, he observed the contraction of the arteries; the contraction, however, was very gradual, and did not cease until after the lapse of a quarter of an hour or twenty minutes.

It will be seen by a reference to Müller's Physiology(*a*), that this physiologist believes that arteries are not muscular, that the circulation is in no way dependent on any contractions of this description, and that the only power by which the blood is moved in the arteries is the force of the heart's contraction.

The chief object of the writer of this part of the Appendix is to show that arteries do possess the power of contracting upon their contents, and that their minute structure is similar to, if not identical with, the muscular fibres of organic life. He adduces proofs furnished from examination by the microscope, from the results of the application of chemical analysis, and from electromagnetism. How far these investigations go in confirming the view that arteries are endowed with *muscularity*, we leave the reader to form his own opinion. For our own part we cannot but believe, with Beclard, that "when the ventricles of the heart, by contracting, impel a new quantity of fluid into the arteries, already full of blood in motion, the velocity of the motion is increased in all the arteries. The function of the arteries is, therefore, to conduct, as tubes, the blood into all the parts, *and, as contractile tubes*, to impress upon it a part of the motion with which it is animated."

We shall now quote that section of the work which has been devoted to this subject:—

(*a*) Vol. i. pp. 199, 206–7.

"*Of the elastic and contractile Tissue of Arteries.*

"The statement made by Professor Müller, that the middle coat of arteries does not possess any muscular contractility, requires to be somewhat modified, principally on account of the investigations of Henle, which have shown that, besides elastic tissue, the middle arterial coat is provided with fibres in all respects analogous to those of organic muscle.

"This discovery is one of considerable importance, because it serves to explain what was hitherto unintelligible, the well-known property possessed by arteries, especially by the smaller ones, of contracting, under certain circumstances, to a diameter smaller than that which their elasticity alone could enable them to assume. Although this property has been matter of almost universal observation, yet by few writers has any plausible explanation of it been suggested. The sagacity of John Hunter, unaided by microscopic evidence, led him to conclude that the contraction of arteries was really a muscular act. Yet this opinion appears to have been lost sight of, for most writers since Hunter's time, including Professor Müller, have attributed the contraction of the arterial coats to a peculiar vital property, to which they gave the name of *tonicity*, or insensible contractility, without being able to refer this property to any definite structure. In the last German edition of the first volume of his work, Professor Müller alludes to this discovery by Henle, and considers it probable that the fibres described by him are the seat of the contractile power of the arteries, though he appears disinclined to admit their muscular nature.

"Chemical evidence, also, in favour of Henle's account, has been procured by Dr. Retzius, who finds that a solution of the arterial coat in acetic acid is precipitated by cyanide of potassium; this shows that some elements besides cellular and elastic tissues enter into its composition, for the solution in acetic acid of neither of these tissues is precipitated by cyanide of potassium: and that organic muscular fibre constitutes one of the other elements has since been rendered tolerably certain by Dr. F. C. Donders, who, by acting upon the middle arterial coat of a young sheep with a solution of potash, observed that in two or three hours the fibres of the coat separated from each other, became granular, and then dissolved,—changes exactly similar to those which he found organic muscular fibres, under like circumstances, to undergo. The existence of muscular fibres in the middle arterial coat is also inferred by the same physiologist from the effects produced upon it by the action of nitric acid and ammonia. When strong nitric acid is applied to a protein compound, it forms with it what is termed xantho-proteinic acid, which, with ammonia, produces a yellow xantho-proteinate of ammonia. On applying this test with the requisite caution to the coats of blood-vessels, Dr. Donders found that the middle arterial coat alone assumed the characteristic yellow colour. The other coats, as well as the coats of veins, remained unchanged in colour. But the most satisfactory evidence is that furnished by

some recent experiments of Ed. and E. H. Weber, in which they applied the stimulus of electro-magnetism to small arteries. One principal circumstance which induced Professor Müller to deny the muscularity of arteries was the inability of himself and of other experimenters who had occupied themselves on the subject to produce the slightest movements in arteries by means of galvanic and electric stimuli, while in all true muscular tissues the stimuli give rise to manifest contractions. An explanation of the failure of these physiologists may be found in the circumstance that in nearly all their experiments the arteries examined were of large size, such as the aorta and the carotids, in which the thickness of the muscular coat is comparatively small. The experiments of the Webers were, on the other hand, performed on the small mesenteric arteries of frogs; and the most striking results were obtained, when the diameter of the vessels examined did not exceed from one-seventh to one-seventeenth of a Paris line. When a vessel of this size was exposed to the electric stream, its diameter in from five to ten seconds became one-third less, and the area of its section about one-half. On continuing the stimulus, the narrowing gradually increased, until the calibre of the tube became from three to six times smaller than it was at first, so that only a single row of blood corpuscles could pass along it at once; and eventually the vessel became completely closed, and the current of blood arrested. When the experiment was so conducted that only a limited part of an artery was exposed to the electric stream, the extent of tube involved in the contraction was equally limited, not exceeding from one-eighth of a line to a line. The contraction did not ensue the moment the irritation was applied, and it continued for a short time after its withdrawal. The walls of the artery were rendered somewhat thicker at the contracted part, but the narrowing of the canal was proportionally greater than the increase in thickness acquired by the walls. Previous to the complete closure of the artery, the velocity of the stream of blood passing through it, in accordance with hydraulic principles, became considerably accelerated. When an artery was irritated only for a short time, or by a feeble galvanic current, it speedily resumed its former calibre on the stimulus being withdrawn, and again contracted on a re-application of it; but when the irritation was long-continued, or the stream very powerful, the portion of the artery narrowed by it lost the power of again contracting, and even dilated until it became double its former size, forming a kind of aneurism on the trunk of the vessel. When the abdominal aorta and other large arteries were experimented on in the above manner, no decided appearance of contraction ensued, a result agreeing with the observations of the experimenters before alluded to. The electric current produced no contraction of the capillaries, and only a slight one of the small mesenteric veins. One other remarkable circumstance observed in the Webers' experiments may, though out of place, be here mentioned, on account of its novelty and importance; and that is, the speedy arrest and subsequent coagulation

of the blood in the vessels, especially the capillaries, exposed to the influence of the electro-magnetic stream. The blood corpuscles adhered unusually to each other and to the walls of the vessels, and by the greater amount of friction thus produced they became retarded in their onward movement, and eventually arrested."

The next section is devoted to the consideration of "The muscular Tissue."

"*Structure of Muscle.*—It is found that, with an instrument of good defining power, the border of each fibril appears straight, or nearly so, and that the alternate dark and light particles of which the fibril is composed, have each a quadrilateral and, generally, a rectangular form; and that, in short, it would seem that the elementary particles of which the fibre is made up are little masses of pellucid substance, presenting a rectangular outline, and appearing dark in the centre. Their appearance, indeed, suggests the notion of minute vesicular bodies or cells, cohering in a linear series, the faint transverse marks between, being the lines of junction."

"*Cause of the striped Appearance of Animal muscular Fibre.*—In addition to the several arguments employed by Professor Müller, in favour of the opinion that the transversely striated appearance of voluntary muscular fibre is due to the peculiar structure of the ultimate fibrils of which the fibre is composed, and not to markings on the sheath of the fibre, Mr. Bowman draws attention to another conclusive circumstance, namely, that by successively bringing into focus fresh portions of the depth of a fibre, the first observed striæ become confused, or even vanish, whilst others come into view; showing that they exist not merely on the surface, but through the entire thickness of the transparent fibres."—p. 6.

"*Involuntary Muscles which are composed of striped Fibres.*—In addition to the heart, which is the only involuntary muscular organ mentioned by Professor Müller as having the striped or beaded variety of muscular fibre in its composition, must now be enumerated the lymphatic heart of reptiles and birds; the coats of the stomach and intestines of the tench, and of the stomach in the common roach."—p. 7.

"*Changes in Muscle during its Contraction.*—From what has been learned of late concerning the minute anatomy of striped muscular fibre, and from peculiarities observed in its mode of action, it appears probable that the contraction of this kind of muscle is effected in all cases simply by a closer approximation of the constituent parts of the primitive fibrils without any change taking place in their general direction, without the production of any zig-zag inflections." Mr. Bowman's observations have shown, "that at the contracted part of the fibre the transverse striæ were approximated closer to each other than elsewhere, and gave to the fibre at such parts a somewhat darker appearance than was presented by the uncontracted portions. Professor Ed. Weber's observations were made on muscular fibres while contracting under the influence of an electric current

from a rotatory magnet. He states that, under such circumstances, the contraction may be observed to be attended by a simple shortening and thickening of the individual fibres; and that in this shortening every part of the contracting fibre participates, so that the outline of the fibre remains uniformly straight, and presents no appearance either of zig-zag inflections or of the beaded or knotted characters described by Mr. Bowman."—p. 8.

Are the nerves the sole conductors through the medium of which all stimuli necessarily act on the muscles?

The author of the Appendix seems to entertain a doubt relative to the generally received opinions upon this subject, and appears to think,

"That the muscular tissue possesses within itself an inherent power of contraction, independent of the influence of the nerves distributed to it."

This is recurring to the old theory of Haller upon the same subject. The experiments, upon which this view has recently been attempted to be again revived, were performed by Dr. E. Harless:

"Having exposed rabbits to the influence of the vapour of ether until they were so far overpowered by it that no movements of their bodies could be excited by means even of galvanism, they were killed by opening the carotid arteries, and the brain and spinal cord exposed. On galvanizing these nervous centres not the slightest movement of the body resulted; but when the galvanic stimulus was applied to the muscles of the trunk, violent contractions at once ensued. Galvanizing the crural nerve produced not the slightest action of the muscles of the corresponding leg, but these muscles were thrown into immediate contraction when the stimulus was applied directly to themselves."—p. 10.

Upon the subject of "Voice and Speech" the author states that "very little new information has been contributed to this department of physiology;" we shall, therefore, not dwell upon this part of the Appendix.

"*Of the Senses generally.*—It appears, from some ingenious experiments by Professor E. H. Weber, that the prolonged application of either heat or cold to nerves of ordinary or special sensation, diminishes or suspends for a time their power of conveying to the sensorium the effects of impressions made on them. He found, for example, that on keeping the tongue immersed for from half a minute to a minute in water heated to about 125° Fahr., and then bringing it in contact with sugar, in powder or in solution, the sweet taste of the sugar was no longer perceived. Moreover, the sense of touch, usually so delicate at the tip of the tongue, was also

rendered imperfect. A sensation of numbness was induced in the organ, not unlike that perceived in a limb when 'asleep,' and this sometimes remained for about six seconds or longer."—p. 13. "He found also that by immersing the elbow in a mixture of ice and water, the little and ring fingers became numb, as if 'asleep,' and had no longer the power of distinguishing between heat and cold, and could only imperfectly perceive the contact and pressure of bodies."—p. 14.

"*Of the Sense of Vision. Tunics of the Eye. The Tapetum.*—M. Brücke considers that the function of the tapetum is to reflect the light on the staff-shaped bodies which compose the membrana Jacobi situated over that part of the retina most used in vision, and so to enable these animals to see at times when animals unprovided with a tapetum would be in darkness. He observes that all the colours emitted in the dark from the eyes of animals possessed of a tapetum proceed from this structure alone, except the red, which is produced entirely by the blood in the large vessels of the retina and choroid. A luminous appearance of the human eye, when the organ has been placed under favourable circumstances, has been observed by Mr. Cuming, and he is of the opinion that the reflection takes place, not from the retina but from the choroid and its pigment. Mr. Bowman is disposed to consider it as proceeding from the hyaloid membrane and retina, as well as from the choroid; but M. Brücke is of opinion that in man, as in animals, it proceeds entirely from the blood in the vessels of the choroid and retina."—p. 15.

Some interesting observations have been made upon the contraction and dilatation of the iris, in order to ascertain the share which its nerves possess in regulating these movements:

"The result of experiments recently performed by Signor Guarini, taken in conjunction with those obtained by Valentin, and Dr. J. Reid, appear to leave no doubt that the movements of the iris are regulated by nervous influence derived from two different sources: the act of contraction, whereby the action of the pupil is narrowed, being excited by the third pair of cerebral nerves; that of dilatation, whereby the size of the pupil is enlarged, being dependent on branches from the cervical spinal nerves, which pass through the superior cervical ganglion of the sympathetic. Irritation of the third nerve, for example, causes contraction of the pupil, and division of this nerve is followed by dilatation. Irritation of the superior cervical ganglion, on the other hand, induces dilatation, while its destruction or removal is succeeded by contraction of the pupil. Moreover, after removal of this ganglion on one side, the application of belladonna or administration of strychnine is no longer followed by any marked dilatation of the pupil of the corresponding eye, but that of the opposite eye becomes extremely dilated. Besides thus proving the double source of nervous influence supplied to the iris, those experiments appear also to establish the truth of

the opinion that dilatation of the pupil is as much the result of an active state of the iris as its contraction, and that the one act is, most probably, produced by the radiating fibres of this structure, the other by the circular fibres situated around its inner margin."—pp. 15-16.

As yet we possess no satisfactory information, derived from microscopical examination, relative to the muscularity of the iris.

With regard to the structure of the *Retina*, it is now admitted that the expansion of the optic nerve consists of numerous fibres which radiate from the point of entrance of the nerve, and pursue a tolerably straight course towards the anterior margin of the retina:

"At first the fibres run in distinct bundles, but these, by subdivision and a plexiform interchange of the individual filaments, speedily disappear, and for the remainder of their course the fibres are disposed in the form of a fine fibrous membrane in which it is difficult to distinguish the several filaments. According to Dr. Todd and Mr. Bowman, this expansion of the optic nerve appears to be composed of the grey or central portion alone of the individual fibres, the external white substance ceasing at the point where the optic nerve perforates the sclerotica."—p. 19.

"The observations of all who have recently examined the minute structure of the retina concur in describing the existence of numerous cells and globules surrounding the fibrous expansion of this membrane, and situated chiefly along its internal surface, and within the meshes formed by the interlacing of the individual nerve fibres."—p. 19.

"*Adaptation of the Eye to Vision at different Distances.*—Hueck, who has especially occupied himself with the consideration of this subject, states that the contractile tissues by which the lens is acted upon is situated along the anterior and inner portion of the ciliary body, and consists of transversely arranged, firm, probably muscular, fibres, connected together in a kind of network. Brücke's account corresponds very closely with this, though he considers the whole ciliary body to be composed of muscular fibres, which pass backwards to be inserted into the choroid coat. In birds and many amphibia he describes these fibres as being of the striped variety, but in man and mammalia they are unstriped. Huschke is of opinion that on the contraction of these fibres, which ensues during the vision of near objects, the fluid contents of the canal of Petit are compressed against the margin of the lens, whereby the lens itself is lessened in diameter, and becomes more curved forwards on its anterior surface. Brücke, on the other hand, considers that the action of these fibres will be to draw the choroid, and with it the retina, closer round the vitreous body, so as to compress it [and thus, probably, push the lens forwards, so as to assist in the vision of

near objects]. On relaxation of these fibres the choroid regains its former position by the recoil of a layer of elastic fibres which, according to Brücke, is situated between the ciliary body and the choroid. Dr. Clay Wallace, who was amongst the first to describe these muscular fibres of the ciliary body, considers that they act in adapting the eye to near vision by compressing the ciliary veins and so producing the turgescence of the ciliary processes, which he, as well as the other observers already mentioned, recognises as the cause of the accommodating power of the eye. According to Wagner, the ciliary processes, as well as the ciliary body, contain contractile fibres, which have all the characters of those of organic muscles. Wagner's account of these fibres of the ciliary body and processes is also corroborated by the researches of Dr. Todd and Mr. Bowman." —p. 24.

A Dispensatory, or Commentary on the Pharmacopœias of Great Britain; comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses, and Doses of the Articles of the Materia Medica. By Robert Christison, M. D., &c., Professor of Materia Medica in the University of Edinburgh. Second Edition, revised and improved, with a Supplement, containing the most important new Remedies. Edinburgh, Black. 1848. 8vo. pp. 1003.

We feel much pleasure in bringing under the notice of our readers the new edition of Professor Christison's valuable work; the first having been so long out of print as to lead us to fear that the author would be unable to spare sufficient time from his numerous avocations as a lecturer and a physician in the deserved enjoyment of most extensive practice, to superintend the editing and publishing of a second. The author, impressed with the same dread, informs us that he availed himself of the co-operation of Dr. Douglas Maclagan, Lecturer on Materia Medica in the Edinburgh Extra-Academical School, "who has adjusted his notes, and supplied numerous valuable additions under many of the articles" for this edition. This announcement in the Preface prepared us for the great correctness and many improvements by which it is characterized; for Dr. Maclagan has, by his numerous contributions to the Materia Medica, shown his intimate acquaintance with, and zeal for the advancement of that important branch of medical science, to the improvement of which he has for many years devoted talents of a high order.

No alteration has been made in the original plan of the work, the alphabetical arrangement being still followed, preceded, as

before, by a pharmaceutical introduction; but a supplement has been added, in which a description of the most important new remedies is given. This supplement will by many be thought too short, as only a very few of the remedies that have been recently introduced into the Materia Medica are described in it; but we are of opinion that the author has used a judicious discretion in thus limiting this portion of his book to an account of those novelties in medicine which are likely to stand the test of experience. In a work such as Dr. Christison's Dispensatory, the same caution should be observed with regard to new remedies as in a national Pharmacopœia; for any statement there put forward receives an authentic stamp, and thus a medicine which has been but a short time in use, may, if noticed in it, obtain a character which, on further trial, it will be found not to merit: moreover, there are several treatises on the Materia Medica already in print, in which all new remedies receive a sufficient share of attention.

Amongst the novelties noticed in the Supplement is chloroform. Having given an account of its discovery, chemical history, and adulterations, Dr. Christison describes its actions and uses. He first speaks of its poisonous properties when swallowed in large quantity, and then of its effects when taken internally in medicinal doses; the latter he considers to be calmative and antispasmodic, and believes that on further trial it will prove an important remedy. The dose is from five to twenty minims; it may be given dissolved in water, with the aid of a little spirit. He gives the following account of its effects when inhaled in the dose of one fluid drachm or somewhat more:—

"The most frequent effect is the rapid production of coma, with complete relaxation of the muscles; slow, and often stertorous breathing; upturning and fixing of the eyes; and total insensibility to agents which cause, in ordinary circumstances, the most acute suffering. The pupils are variously affected, but always contractile. Some frothing at the mouth is not unusual. Slight convulsive twitches of the face or limbs are more rare. The insensibility may begin in fifteen seconds, and is seldom postponed beyond two minutes if the chloroform be skilfully applied. It continues usually between five and ten minutes, but sometimes for two hours, if the inhalation has been kept up for some time by renewing the chloroform on the handkerchief. Sometimes quiet sleep succeeds, more generally a drowsy, dreamy state, but not unfrequently rapid complete consciousness and activity. In general no recollection whatever is retained of any occurrence during the state of insensibility, but sometimes there occurs a dim apprehension of what passed. For

the most part there is no remarkable subsequent effect, no lassitude, no sickness, no loss of appetite; occasionally, however, a little weariness or sickness."

When the effects produced by the inhalation of chloroform are too intense,—death has been caused by it recently in at least three cases,—Dr. Christison recommends as "the best remedies, the horizontal position, cold air fanned across the face, and a stream of cold water poured on the brow and head only." He also justly cautions against the use of internal stimulants before the patient revives somewhat, as the respiration might be further embarrassed by them. In urgent cases, of course, artificial respiration must be employed.

In conclusion, we need scarcely say that we strongly recommend this work to all classes of our readers. As a Dispensatory and commentary on the Pharmacopœias, it is unrivalled in the English or any other language.

On Indigestion, its Pathology and Treatment, by the local Application of uniform and continuous Heat and Moisture. With an Account of an improved Mode of applying Heat and Cold in Irritative and Inflammatory Diseases. By JAMES ARNOTT, M. D., Physician to the Brighton Dispensary. London, Churchill. 1847. 8vo. pp. 107, with a Plate.

DR. ARNOTT is favourably known to the Profession by the skill which he has manifested in devising mechanical aids for the more successful treatment of disease; for an account of his numerous suggestions and inventions with this view, we would refer to his admirable little essay on Therapeutical Inquiry, published in 1845, which will well repay an attentive perusal. The present treatise is written in the same spirit, and displays throughout the inquiring mind seeking after new means of curing disease. Being struck with the advantages which the local application of heat or cold produces in many affections,—although no effectual means of regulating the degree of either in their continuous application has hitherto existed,—he devised a means of regulating "the dose of temperature" with precision, and the results at which he has arrived are here set forth:—

"Having thus obtained," says he, "possession of what, from so great an alteration in its qualities, may be termed a new remedy, I have employed it extensively, because I found that it supplied a great desideratum in therapeutics, viz., an expedient

having sufficient power to reduce vascular excitement without the hazardous effect of debilitating the general system, or causing local irritation—an antiphlogistic measure, characterized as much by its safety as by its power. I have applied heat, combined with moisture, in irritative and inflammatory affections of the great cavities; and cold, combined generally with fluid pressure, in diseases of the skin, and of the joints, in ulcers and in external inflammations. But the disease in which I have principally used the former application, is indigestion. It is the most common of all the affections to which this exhibition is applicable, and stood more in need of improvement in its treatment. Being, moreover, the least under the influence of other measures, the efficacy of heat and moisture in curing it has been more unequivocal than in other diseases of the same class. And I have confined myself on the present occasion almost exclusively to the consideration of indigestion, from the idea that, if the practitioner become familiar with the proper use of the means which I have recommended, in a disease of such frequent occurrence, and respecting the cure of which he must be daily conscious of the present insufficiency of his art, he will be prepared to extend its use to other analogous affections. He will not, as respects its employment in dyspepsia, find any opposition on the part of his patient on account of the nature of the remedy, for none can give the patient less trouble or be more agreeable to his feelings; nor will he be impeded, by the use of this external application, in the employment of whatever internal remedies may be required, either for the disease of the stomach itself, or for any of the numerous sympathetic affections which arise from it."—p. iv.

Previously to describing the apparatus he has invented, the author enters into an historical account of the employment of heat and cold as antiphlogistic remedies; and proves that the reason why they have fallen so much into disuse is the want of proper means for the application of either. This is a fact known to every physician; and at present we rarely think of employing these remedial agents, except as auxiliaries to other modes of treatment. In one form, indeed, cold is still applied as a chief remedy, namely, in the form of cold water poured from a height on the head, in coma and convulsions. With its good effects when thus used every physician is familiar, and this happens to be the only mode at present employed in which the *continuous* application of cold can be kept up for any length of time. Although of undoubted efficacy, cold to the head is now rarely had recourse to in fever, from the almost total impossibility of so regulating the temperature as to keep the part below the standard temperature of the body, unless which be effected, the application is positively injurious. So convinced are the most eminent writers on fever of this, that we find them advising warm fomentations instead: "I have, therefore," says

Dr. Graves, in his Clinical Lectures, "given up, except in very few cases, the practice of applying cold lotions, and give a preference to the use of warm fomentations of equal parts of vinegar and hot water, applied to the temples and shaven scalp, and frequently repeated."

The injudicious manner in which heat also is at present employed as a remedial agent is well described by Dr. Arnott, as follows:

"In the medical use of heat there has hardly been any other effort made to attain uniformity than by the frequent renewal of the applications communicating it. The attempt to preserve the heat of poultices, sponges, &c., by covering their outside with flannels, varnished cloths, or other non-conducting substances, while it has so ready means of escaping inwards, must, obviously, be of very little avail. Almost all that can be thus effected is, as in the ordinary use of warm clothing, to retain the natural heat of the body.

"One injurious consequence of the rapid cooling of cataplasms and fomentations has been, that in order to retain a serviceable degree of heat for some time, they are usually applied at a temperature greater than is appropriate to the case, or than the physician would approve, could he otherwise maintain the heat. A series of pernicious excitements will often thus be produced, over-balancing, in many cases, the good that would result from a more moderate temperature; for too great a degree of heat is quite as hurtful in cases requiring this remedy, as a freezing temperature would be in cases in which cold is the appropriate application.

"The difficulty in most cases, and the impossibility in others, of maintaining the appropriate remedial degree of heat by poultices or other similar means, appears, as we have said, to have caused the abandonment of the remedy to a certain extent. The only effort now made by some practitioners, in cases in which they would have formerly applied a repetition of poultices, is to retain the natural heat of the part. They now substitute pieces of lint, or thin slices of sponge, dipped in warm or tepid water, and which, after being covered with varnished silk, are allowed to remain without changing for an indefinite time. When moisture is an advantage and an increase of heat is not required, such expedients, or "water dressings," as they have been called, are very useful, and may be advantageously used instead of ointments or plasters. But, unfortunately, their nature has been much misunderstood. By many they are deemed equivalent to hot fomentations, and are sometimes, by a gross abuse of the term, even so denominated. As well might a glass of water be called a purgative draught. Hot fomentation implies the use of a liquid of a temperature considerably higher than that of the part to which it is applied. The usual direction respecting the degree of heat which cataplasms and fomentations should have, is that given by the President of the College of Physicians, viz., that the water should be 'as warm as the patient's feelings will readily

admit.' This may be somewhere between 110° and 115°, or 15° at least higher than the usual temperature of the water dressing. Now, although merely retaining or preventing the loss of the natural heat of the part may to a certain extent be useful, it would be absurd to expect from this the remedial effect of warm fomentations, either in kind or degree. It would be as reasonable to expect the sleep and relief from pain that are procured from the exhibition of twenty drops of laudanum, by a tenth part of the dose. Nor can such negative practice be called leaving nature alone, or trusting altogether to her restorative efforts. For nature, as has already been observed, prompts the employment of these remedies; and the immediate soothing effects of warm fomentations, as well as their more permanent benefits, sufficiently attest the advantage of attending to her admonitions. The same objections apply to too low a heat, in cases where fomentations are indicated, that apply to tepid lotions where cold is the appropriate remedy. The practice is nugatory. The patient is deprived both of what would give him relief and of what may be essential for his cure."—p. 33.

Having thus alluded to the inefficacy of the methods used by the profession in the present day, for the employment of two most valuable therapeutical agents, the author proceeds to describe the plan he proposes, and which he states that he has now employed for many years:

"A current of water, of the appropiate temperature, is made to flow through a thin waterproof cushion or bladder in close contact with the body. The water runs into the cushion from a fountain reservoir raised above it, through a long flexible tube; and again, escaping from the cushion, it passes through another tube into the waste vessel. The cushion is of a size and form suitable to the part of the body on which the water is to act; and, by a particular contrivance, any pressure from its weight is prevented. The part in contact with the cushion is kept moist either by previously wetting the cushion, or by interposing a piece of wet lint, flannel, or other bibulous substance.

"It is obvious that, by the use of this 'current apparatus,' there must be perfect control over the application of heat or cold. Fresh particles of water pass continuously over the surface of the body, abstracting or communicating heat, just as (with respect to its abstraction) the hand is cooled by exposing it to a current of cold air, or by holding it in a stream of cold water, although there is rarely necessity for a quicker change of the particles of water than is occasioned by the alteration of their gravity in consequence of their alteration in temperature. The intervening membrane or cloth makes no difference, or only that which a thicker scarf-skin would cause, rendering a little higher or a little lower temperature of the water, or a quicker passage of it over the surface, necessary to produce the same effect.

"The advantages of this method over those that have hitherto been employed, are as follows:—

"First: it enables the practitioner to apply any determinate and appropriate temperature uniformly for any required period.

"Second: cold can thus be applied to any part of the body without risk from the exposure of other parts. And, allied to this, is the power of confining or limiting with exactness the action of the remedy to certain surfaces.

"Third: the ease and comfort to the patient with which the apparatus may be managed, and the little trouble which its working, when once thoroughly understood, gives to the attendant. No one having a knowledge of human nature will consider the latter circumstance as unworthy of being noticed. Should the patient sleep, his rest will not be disturbed by a continuance of the process.

"Fourth: the power which this method gives of gradually increasing or decreasing the heat or cold in order to prevent stimulus or reaction at the beginning or end of its action, or during the continuance of this, should circumstances demand the change.

"Fifth: the possibility of thus applying equal pressure, with perfect regulation of temperature. This combination, hitherto impracticable, is of the highest importance in the treatment of most of the diseases in which pressure has been found of remedial value; and it has been extended to several, such as eczema and other obstinate diseases of the skin, in which pressure, probably from the heat that is caused by bandages, has never been applied. But there is more gained by this combination than merely the avoidance of an injurious circumstance. Besides that, compression by a fluid has a great advantage in its perfect equality, over the unequal and quickly-disadjusted pressure of a bandage. Many diseases will yield to the united action of pressure and cold that would resist either of these agents when employed alone. The only modification of apparatus required for this important combination is, that the water cushion shall be confined to the part to be supported or compressed, and the reservoir raised to the height required to give the appropriate weight or pressure."—p. 38.

The author meets the objection which he fears may be raised to the use of this apparatus—its complexity, by assuring us that it is no less efficient than simple, and very much more simple and easy of application than many of the operations at present daily employed in the treatment of disease, for example, the abstraction of blood by cupping. He tells us, moreover, that we are not to judge of the beneficial effects of heat and cold thus applied, by reference to the common mode in which they are used; and that practitioners are reduced to the alternative of having to use this apparatus, or of rejecting a most powerful, and unquestionably safe remedial agent, particularly for subduing inflammation.

In the third section of his treatise the author describes at length the mode of managing the "current apparatus" in the treatment of various diseases, and of its application to different parts of the body; and then enters into a particular description of its construction.

"CONSTRUCTION OF THE CURRENT APPARATUS.

"*The Reservoir.*—Where it is of importance that the pressure of water in the cushion shall always be the same, as it is in every case in which the remedial application of *equal* pressure is desired, or that the stream of water shall be uniform, the reservoir must be constructed on the principle of the fountain bird-glass, or ink-glass, having an opening nearly an inch in diameter close to the raised bottom, with a pan in front about three inches deep, and having a stop-cock about an inch below the opening in the body of the vessel. The reservoir is of japanned tin, and contains about four gallons of water. When it is used for warm water it must be covered by thick flannel or some other non-conducting substance, or a small lamp may be placed under it.

"The reservoir for the 'Intermitting Current Apparatus' is a can containing six pints, with an opening near the bottom for the stop-cock.

"*The Water-Cushion or Bladder.*—A thin or prepared bladder will form the best cushion when close contact with the skin is desirable. The pieces of brass for connecting it with the supply and waste tubes are made with a neck, to prevent the slipping of the bladder; they are made as light as possible, and that part which projects into the bladder should have holes in the sides as well as through the centre.

"The particular kind of macintosh cloth principally used for water-cushions is that which is called "zephyr cloth" by the makers. It is thin, yet sufficiently strong and durable. The practitioner might prepare the cushions himself; and with the cans of dissolved India-rubber there are directions given for its employment for such purposes; but it will generally be more convenient to procure them from the manufacturer. For the Current Apparatus each cushion must have at least two brass connecting-pieces fixed in it, and in situations appropriate to the purpose for which it is used. In the cushions employed in the treatment of dyspepsia, for instance, one piece is inserted about a third from the corner of the long margin, and another in the middle of the short margin. When the 'Intermitting Apparatus' is used, that in the long margin is alone sufficient.

"The cushions must be of various forms, adapted to their several uses. For the head the cushion must resemble a double night-cap; and for the limbs it may be made like a double glove or stocking.

"Cushions of mackintosh cloth are very durable; and when

they leak they can be easily repaired by detaching a bit of the outer from the inner layer, after moistening it with oil of turpentine, then cutting this off and replacing it by another bit of cloth covered with caoutchouc varnish.

"*The Supply and Waste Conduits.*—The recent invention of vulcanized india-rubber affords the best material for these. If made of this they should be thick, and have a bore of at least three-eighths of an inch. The supply-tube is about four feet in length. One end is fixed to the stop-cock of the reservoir by a brass stopper, like that of a bottle, and has a small cork or stopper suspended from it, by which it may be closed when it is removed from the reservoir; the other end receives one of the connecting pieces of the cushion, or is screwed to it. The waste tube may be of various lengths, suitable to the distance of the waste vessel from the patient; and it receives at its outer end, especially when pressure is to be made, a brass screw to act as a stop-cock. When the end of the waste tube rests on a stand it receives a piece of pewter tube instead of the brass screw.

"*The Supporter.*—This constitutes a very essential part of the apparatus; its purpose being to prevent the weight of the water dragging or pressing on morbid parts, or on yielding cavities, and to keep the cushion in close contact with the skin. A convenient supporter for the cushion used in dyspepsia is a piece of sheet lead covered with calico, and of rather smaller dimensions than the cushion. For the head a similar piece of lead is bent into the form of a sort of trough, and a circular piece of calico is sewed to its covering all round, to support the top of the cushion. For the thorax and abdomen I have occasionally used a sort of wooden trough, the sides of which may be brought nearer the centre by means of ranges of holes in the piece constituting the bottom, and corresponding plugs in the side pieces. The large cushions used for surrounding the chest or abdomen often require to be tied with tapes to the supporters, to prevent the floating of the patient's body.

"Other contrivances are preferable for certain purposes as supporters. That which was first used in the case of a diseased ankle, and which is described in the Appendix to my 'Essay on Therapeutical Inquiry,' was a sort of boot, made of tin, opening lengthways by hinges; it fitted the limb closely above and below the diseased joint, but was much larger in the middle."—p. 96.

These observations are illustrated with a plate of the apparatus.

We have not entered into any account of Dr. Arnott's views as to the applicability of this method of treatment to indigestion; as our object has been to bring under the notice of our readers his valuable improvements in the mechanical application of useful therapeutical agents which had nearly fallen into disuse.

On the Cure of Cataract, with a practical Summary of the best Modes of Operating (Continental and British). By Hugh Neill, Surgeon to the Liverpool Eye and Ear Infirmary. Liverpool, Deighton and Laughton; London, Churchill. 1848. 8vo. pp. 224.

This is a curious specimen of the art of book-making. Mr. Neill thinks that, with rare exceptions, the best mode of treating cataract is to "recline" the opaque lens. He describes his manner of performing the operation, and gives the reasons why he prefers it to "extraction." All this occupies about ten pages, to which he adds the opinions of three French oculists on the nature and cure of cataract, accompanied with a running commentary of his own, and the volume attains its mature bulk of 224 pages by the addition of a final chapter on the use of ether and chloroform.

Mr. Neill states in his preface, that the object of making such long extracts from other men's books, is "to bring before the profession an analytical review of the leading contributions of eminent continentalists on the cure of cataract," as "many years have now elapsed since a *resumé* of British and Continental authorities upon cataract has been submitted in England." The reader, whose curiosity has been excited by this announcement, will be grievously disappointed to find that the names of Stoeber, Magne, and Desmarres, complete the list of "eminent continentalists," while the only "British authority" quoted is—Mr. Guthrie.

Part I. is headed "Leaves from Victor Stoeber," and contains seventy pages of remarks on the nature and cure of cataract, such as may be found in most of the text-books published within the last twenty years.

Part II.—"Views of Magne"—is chiefly occupied with praise of the catoptric test for cataract, which was first described by Purkinje(*a*), but is here vaunted as the discovery of Sanson. Mr. Neill in this, as in the preceding part, furnishes a running commentary on his author, and gives an occasional explanation of what he thinks a difficult phrase—not always happily; e. g., "sincipital cauterization (burning the back of the head)."

In Part III., the "Views of Desmarres" are set forth, by a translation of that part of his *Traité théorique et pratique des*

(*a*) J. E. Purkinje, *Commentatio de Examine Physiologico Organi Visûs*, &c. Vratislaviæ, 1823, 8vo. We shall hereafter take an opportunity of exposing the inconclusiveness of this means of diagnosis.

Maladies des Yeux, which relates to cataract. Much of the old ground already explored in the First Part is here gone over again. Mr. Neill avows himself an admirer of "free translations;" so are we: but freedom may be carried too far, as in the case of proper names, which have hitherto been considered untranslatable. Mr. Neill, however, is not to be daunted, and at page 114, Marc Antoine Petit receives the honour of British citizenship as "Marc Antony 'the little.'" We fear that many of our countrymen, familiar with court-plaster, will hardly recognise their old acquaintance as "gummed taffetas;" and, without being severe purists, may dislike to read, in a work professedly English, that "an operation was floored." We must quote one more specimen of Mr. Neill's knowledge of French. Desmarres, describing Mr. Alexander's method of performing extraction, says: "*Ce procédé, entre autres avantages, présente ceux de se passer d'aide, d'éviter la sortie brusque du cristallin, et de ne pas s'exposer à celle des milieux de l'œil.*" At page 138 his translator thus *freely* renders the passage: "This method dispenses with an assistant, avoids the sudden emanation of the crystalline, and *does not expose it to the middle parts of the eye.*"

The table in which Mr. Neill sets down the *number* of operations he has performed is not worthy of much attention, because, as the *result* is not stated, the mere fact of "reclination" having been done so many times, proves nothing either for or against it; but we cannot pass over unnoticed his unfair attempt to advocate the superiority of reclination over extraction by repeating the silly statement, that, "to extract a cataract well, you must first put out a hatfull of eyes." Mr. Neill ought to know, that a person endowed with manual skill (without which gift no one should ever attempt to operate on the eye), if he has thoroughly prepared himself by diligent practice on the dead body, need not lose even his first case of extraction; while it is equally certain that a bungler may just as effectually blind a man with a needle as with a knife. Mr. Neill's knowledge of the subject, and his idea of "the requisites for success when extracting a cataract," may be gleaned from one of the few original passages in his book: "For extraction, extraordinary endowments and great acquirements, on the part of the surgeon, are indispensable. You require experience; I may well say, extraordinary experience." Well, we grant that much of this is true; but if such be not possessed, at least to a certain extent, the operator fails in one of the greatest requisites for an ophthalmic surgeon. "And on the patient's part, exceeding steadiness and nerve are requi-

site." "You require," says Mr. Neill, "a *full*, prominent eye," and "a *well and fixedly dilated pupil*"!! And of the operation itself, he says: "The cornea should be fully cut across *at once*, and smoothly; no hitching or botching; the least bungling will floor [?] the operation."—p. 183. But even on the discovery of the advantage of cutting across the cornea "at once,"—that is, we suppose, completing this part of the operation, without making several attempts at it, or not making the incision by a series of successive cuts,—Mr. N. is not original; for having applied to a London operator as to his mode of proceeding, he advises that "the incision should be made at once, *if possible*."—p. 182. When an operator strongly objects to extraction, and prefers other modes of curing hard cataracts in advanced life, where the eye is otherwise sound, and in all respects suited to it, according to the acknowledged rules in such cases, we are greatly inclined to question his powers of preforming that delicate, but, in proper hands, eminently successful operation.

Lectures on Diseases of the Eye. By John Morgan, F. L. S., &c. Second Edition, carefully revised and enlarged, with Notes, by John F. France, Surgeon to the Eye Infirmary, and Lecturer on Ophthalmic Surgery, at Guy's Hospital. London, Highley. 1848. pp. 222. With coloured Plates.

In the present instance we have deviated from the usual rule of our journal, of reviewing all books bearing on the same subject in the same article; but the character of that now under consideration differs so widely from the work which we have just noticed that we do not think it would be fair to place them in the same category. This is, as the title explains, a second edition of the late Mr. Morgan's Lectures on the Eye, first published in 1839, slightly enlarged by a preface and some notes by the editor, Mr. France, and a biographical memoir of the author. It does not profess to be a system of ophthalmic surgery, but merely a series of lectures upon some of the more important diseases of the eye, principally intended for the use of students, and delivered in a simple and unostentatious style. To this are added eighteen coloured plates, illustrative of the diseases of the eye, and taken either from nature or given in the form of enlarged diagrams, explanatory of vascular arrangements and other morbid appearances. Of these plates, the most of which are drawn on zinc, we cannot say much; they are somewhat more formal, but scarcely so natural, as those of Mr. Tyrrell, with which, as works of art, they may be classed.

Indeed, since the days of Wardrop and Travers, we have had no illustrations of ophthalmic pathology published in Great Britain deserving of notice, either as works of art or as accurate delineations of disease. This is, however, a desideratum which we hope to see shortly supplied. As the result of the experience of a practical ophthalmic surgeon, Mr. Morgan's book was well received by his pupils and the profession upon its first appearance. It was, however, soon superseded by the more important and extensive work of the late Mr. Tyrrell. The original object of the book was to describe concisely and clearly the common and more important diseases of the eye, "and to illustrate as much as possible the analogy between the diseases of the eye and those of all other parts of the body;" and the chief intention which the author had in view was, he informs us, to induce the surgical student to become as well acquainted with ophthalmic diseases as with general surgery; and any work which is calculated to induce the student and the young practitioner to acquire a knowledge of that which is not set forth in the required curriculum of his education, is certainly a boon to humanity and a benefit to professional literature. As a general treatise on the diseases of the eye, it is, however, very deficient, and as a student's manual it wants that conciseness, arrangement, and facility of reference, which a work of that description particularly requires. Many diseases are altogether omitted, and the author does not, we must say, appear highly informed upon the literature of the subject on which he treats. On the present occasion, however, we have merely to notice a few of the opinions and modes of practice set forth in this reprint, and to see how far the labours of Mr. Morgan's successor in the ophthalmic department at Guy's Hospital have increased the value of the work.

Ulcers of the Cornea.—Mr. Morgan gives in a few words a very fair description of the usual appearances of ulcers of the cornea, and we have no desire, in reviewing a work such as his professes to be, to find fault with the omission of some of the rarer forms and peculiar modifications which this class of diseases occasionally present. In describing the healing process the author makes the following judicious remarks, which we quote the more readily, because the profession generally, and young practitioners in particular, are led into error in interfering with a process of nature intended as a reparative and not as a morbid action.

"Now, of the numerous and beautiful illustrations of the natural adaptation of means to ends derived from pathology, a healing ulcer

of the cornea is, perhaps, one of the most striking. We see, in these cases, the mode in which nature avails herself of distant resources for the attainment of her object: when the vessels of the cornea are unable to effect the process of repair, the vessels of another part are called in to their assistance; a plexus of conjunctival vessels forms, and extends itself across the sclerotic, and over the cornea, without giving off any branches until the ulcer is reached: to this part they are distributed, and here they pour out and organize adhesive deposit, and thus assist in repairing the breach produced by ulceration. After a time, the sides of the ulcer approximate, the cavity is filled up by soft grey matter, and a smooth surface of conjunctiva is formed on the spot; the halo now disappears, and the red vessels having performed their destined office return to their former condition, and continue thenceforward to carry colourless blood."

How frequently have we seen caustics and even the knife employed to destroy these nutritious vessels! Mr. France adds the following judicious remarks upon this section of the text. We think, however, that although the author did not cite authorities, his commentator should occasionally make some acknowledgment to the labours of others:

"*Note.*—Ulceration of the cornea being rarely, if ever, a primary affection, the treatment, for the most part, merges into that adapted to the exigencies of the disease which has led to it. There is a peculiar feature, however, connected with ulcers on this part; namely, that however intractable they may be for a certain time,—though the immense majority yield readily to judicious remedial measures,—yet from the period when perforation of the cornea is effected, the cases almost invariably make rapid progress to convalescence. It would seem that the diminution of tension, produced by the aqueous chambers being completely evacuated, is the immediate cause of the mitigation and progressive amendment which so directly ensue. Of course, this fact is not cited with the view of inculcating any laxity in the endeavour to arrest the advance of ulceration; nor as establishing, though it certainly suggests, the propriety of puncturing the cornea in certain cases: but when, as will sometimes occur, a deeply eroding ulcer upon the cornea resists the means usually found efficacious, and imminently threatens perforation, it is encouraging to know that, the mischief once accomplished, the surgeon may in all probability date the patient's relief and steady improvement from the moment of its accomplishment; and that, if anticipating and prepared for the event, he need not despair of altogether preventing ultimate injury to vision from its occurrence.

"The application of belladonna is, under these circumstances, the principal adjunct to the measures previously requisite; and its beneficial action is irrespective of the position of the ulcer. For, if

the aperture in the cornea be near the axis of vision, dilatation of the pupil palpably tends to remove the iris entirely from the danger of prolapse; while, if near the margin of the cornea, though dilatation cannot obviate the proximity of the iris, yet the general centrifugal contraction of that membrane, which produces dilatation, creates such draught upon the endangered or actually prolapsed portion of iris, as must materially counteract its disposition to protrude.

"It is needless in this place to advert to the arguments which prove dilatation of the pupil to be, as just assumed, an active condition; further than simply to state that, owing to this fact, the persevering use of belladonna will sometimes eventually succeed in detaching an iris partially adherent to the cicatrix of a corneal ulcer, even after the lapse of five or six weeks from the formation of that adhesion. The same fact is shown, in a still more striking manner, in the disruption of frænal adhesions between the iris and the capsule of the lens; the force exerted upon which, prior to their giving way under the influence of belladonna, is plainly exhibited by their evident tension, and the deep festoons into which the free portions of the iris are drawn at the intervals of adhesion. Belladonna should, therefore, be applied, when perforation happens at any part of the cornea; and its use should be persisted in for many weeks after the aperture is closed, if synechia anterior is not sooner overcome."

We have our doubts, however, whether Synechia anterior, or attachment of the iris to the back of the cornea, will ever be overcome by the action of belladonna, though continued for weeks, if the adhesion be once firmly established. The band of adhesion may, however, be considerably lengthened, and the pupil consequently enlarged thereby. Slight adhesions between the uvea and lens are much more likely to be broken up by the application of belladonna, used in the form of atropine, a preparation, of the efficacy of which Mr. France makes no mention here.

In the succeeding section upon "*Abscess of the Cornea or Onyx*," the same error in nomenclature occurs, which has been frequently alluded to in this Journal. "When," says Mr. Morgan, "an abscess on the posterior layers of the cornea bursts into the anterior chamber, the matter sinks to the lower part and produces an appearance called hypopyon or unguis." And again: "The term onyx is applied to the opaque inflamed spot, which encloses an abscess of the cornea; and the term unguis, *or hypopyon*, to a collection of matter in the anterior cramber." This jumble of words and misapplication of terms is exceeding apt to mislead the reader, and should have been avoided in a work purporting to be "divested of the

overwhelming blunders of a licentious nomenclature." In fact, it would appear, from the foregoing description, as if onyx and unguis were both different diseases, whereas one is but the Greek and the other the Latin name for the same affection,—a collection of matter, usually puriform, in the lower segment of the anterior chamber, which, from its colour, and the shape which its boundaries naturally cause it to assume, very much resembles the white elliptical mark seen at the root of the nail of the human hand; whereas hypopyon should only be applied to purulent collections in the substance of the cornea, either circumscribed in the form of abscess, or, as is more frequently the case, diffused through the laminæ of that membrane. The former disease onyx is but an appearance, generally the result of the latter, but it may also be caused by the gravitation of pus in the anterior chamber, no matter from what source, whether an abscess in the iris, the lens, or the cornea. Mr. Tyrrell pointed out the difference of these terms in his work; but Mr. Wharton Jones has recently fallen into the error to which we have adverted, in his Manual of Ophthalmic Medicine and Surgery; he describes hypopyon as a "collection of pus or puriform matter, occupying the bottom of the anterior chamber," p. 196: but in a previous section he says:

"The depositions of yellow matter which occur in the interstices of the cornea at its lower part, and which, on account of their presenting the form of the lunular spot at the root of the nails, are called unguis or onyx, and which are in general rapidly absorbed, as the attendant inflammation is subdued, have not the character of abscesses like the circumscribed collection of matter which forms at the centre of the cornea."—p. 78.

We believe this subsidence of matter through the interstices of the cornea, like water in anasarca, to be a very rare occurrence, if indeed it can ever properly be said to occur; and we are strongly inclined to the opinion that in such cases the appearances are deceptive, and that the matter is really in the anterior chamber, but from its glutinous or adhesive property (for it may be effused lymph as well as pus) that it does not gravitate from side to side on altering the position of the patient's head, as puriform matter in the anterior chamber usually does. There is considerable obscurity in the ancient writers on this subject, but it is high time that the nomenclature of this branch of surgery should be fixed and determined.

With the following judicious remark of Mr. Morgan's on the treatment of this affection we, however, fully agree:

"Avoid the use of mercury in excess. If the system becomes

affected by mercury, the disease frequently spreads with rapidity, and destroys the whole cornea. In this structure, as elsewhere, you will always find supurative and ulcerative inflammation aggravated by ptyalism."

Mr. Morgan was in the habit of occasionally opening the cornea for the purpose of evacuating the effused pus; but this is a mode of practice which should be resorted to with great caution, and only when there is excessive pain, and that the matter has accumulated, so as to reach above the level of the upper margin of the pupil. It is astonishing with what rapidity puriform matter effused into the anterior chamber of the eye will be absorbed, as soon as the violence of the local inflammation has subsided, and that the constitutional irritation and general impaired state of the system has been lessened; and we are sure that we have seen cases in which the eyes were irrevocably lost from untimely interference, which, if left alone and treated with emollients, slight local depletion if necessary, continuous counter-irritation, attention to the state of the digestive organs, the use of bark, and rather a generous diet and pure air, &c., would have done well. We incline to the opinion of Scarpa:

"That, however small the wound made in the lower part of the cornea may be for the purpose of giving issue to the matter of hypopyon(*a*), it most frequently reproduces the inflammation, and occasions a greater effusion of coagulable lymph into the chambers of the eye than before."

It is evident, however, from the context, that the Pavian oculist understood and included puriform collections by this term; "and if even after the division of the cornea," he continues, "the matter of the hypopyon be permitted to flow out gradually and by drops, in consequence of its tenacity, some days elapse before it is entirely evacuated; and the glutinous lymph, by keeping open in the mean time the wound in the cornea, causes it to suppurate and degenerate into an ulcer," &c. We would particularly direct the attention of ophthalmic surgeons to the whole of Scarpa's judicious observations upon this subject. Mr. France adds as a note to the chapter in Morgan's book, now under consideration, the following observations:

"*Note.*—Two circumstances with respect to this object, not

(*a*) A Treatise on Diseases of the Eyes, &c. Brigg's translation, p. 276. Scarpa fell into the error common to his time with regard to the nomenclature of the disease, to which we have already adverted.

alluded to above, are worthy of notice. The first is, that whenever a collection of matter forms between the layers of the cornea, there is always produced an ulcer upon the corresponding portion of the surface; the second, that notwithstanding this overture from without, the abscess, in apparent opposition to analogy, habitually discharges itself internally. The regularity with which a hypopyon thus formed disappears under the influence of medicine, contributes to afford solution to a much debated question; namely, whether pus once effused is ever re-absorbed? It may be denied that the matter of hypopyon is true pus, in those cases which undergo cure without operation; and the surgeon must admit the fact, that microscopical demonstration of pus globules is in such cases, from their very nature, precluded. Still, as in the history and circumstances of its production, no less than in all its appreciable characters, this matter often agrees completely with the product of a common abscess, the objection appears to possess little weight.

"Operative interference should always be refrained from, unless the case imperatively demands it; but progressive augmentation of the morbid effusion, unchecked by treatment, so as to reach the level of the pupil, with continued maintenance of inflammation of the part, and of severe hemicranial and local pain, unrelieved by cupping, anodynes, and other measures enjoined in the text, indicates the necessity of puncturing the cornea. When thus urgently called for, the operation should be performed with the point of a cataract knife; and a low situation in the cornea should be selected, to facilitate the discharge of the morbid effusion, to diminish the danger of wounding the iris (which is, of course, lessened by the introduction of the instrument nearly in the same plane with, instead of at right angles to, that membrane), and to prevent a subsequent cicatrix in the axis of vision. After evacuation of the anterior chamber in this way, belladonna must be applied for the same purpose as after perforation from ulcer."

With respect to the double ulcer in cases of matter produced in the layers of the cornea, we agree with the editor; but it in nowise follows that the pus is only discharged from that on the internal surface of the cornea. We believe it is discharged equally from the external one; but owing to the lachrymal secretion and from the parts being continually wiped by the lids, it is removed as fast as it it effused.

Inflammation of the Iris.—Mr. Morgan acknowledges three forms of iritis,—idiopathic, syphilitic, and arthritic. Treating of the idiopathic form of the disease, he has made a very just observation, and one for which he should get due credit.

"In very severe cases the whole of the pupillary margin of the iris becomes glued to the capsule of the lens, and thus the communication between the anterior and posterior chambers of the aqueous humour is cut off. The iris, thereupon, not unusually bulges for-

wards, from the pressure of the aqueous humour in the posterior chamber. A larger portion of aqueous humour seems to be secreted from the posterior than from the anterior chamber of the eye, under such circumstances; and consequently, when the communication between the two chambers is closed, the more abundant secretion behind necessarily pushes the iris towards the cornea.

"I do not mean to assert that in the healthy state a greater quantity of aqueous humour is secreted in the posterior than in the anterior chamber; but I think that this is always the case when, after perfect adhesion of the pupil, the iris is thrust forwards; for there appears no other way of explaining the phenomenon."

During the past year the younger Chelius, of Heidelberg, has advanced the opinion that the aqueous fluid is secreted from the membrane of the uvea *only;* and we ourselves have little doubt that it is much more abundantly secreted in the posterior than in the anterior chamber. Cases such as those described by Mr. Morgan must be constantly observed by all ophthalmic practitioners, and we have seen instances in which the aqueous fluid in the anterior chamber having escaped during the operation of keratonyxis, and the lens having fallen forward so as to fill up the pupil and thus prevent communication, the aqueous fluid was not regenerated for several days, until, as it would appear, some communication was established between the two chambers. We have observed the same thing in accidental dislocation of the lens from injury.

"I have never," says the author, "seen syphilitic iritis where mercury has not been previously given; and I therefore consider it a compound disorder." This, however, is a theory which few will agree with, no more than the absurd assertion in the following page, that the colour of the sclerotic "zone in syphilitic iritis is highly characteristic; it is not pink, but like cinnamon, rusty, brown red; a circumstance which constitutes a good diagnostic mark between common and syphilitic iritis."

The most defective portion of Mr. Morgan's work is that devoted to operations. The operations for cataract are disposed of in somewhat more than nine widely-printed pages, including a note from the editor; and the operations for artificial pupil in four! In extraction Mr. Morgan placed the patient in a recumbent posture, and had "the head firmly held by an assistant," who raised the upper lid; but he does not inform us in what position the operator remained,—whether sitting, kneeling, or standing; and he omits to mention one of the most important preliminary steps, that of fixing the globe of the eye by the fingers of the operator before any attempt is made to transfix the cornea: this deficiency is, however, sup-

plied by his editor. He recommends the oblique section downwards and outwards, a most awkward one to perform, particularly with a long Wenzel's knife, as represented in the second figure of his fifteenth plate.

The entire of the after-treatment is disposed of in six lines and a half. In cases where the edge of the iris, or a portion of its surface, bulges over the knife in completing the section, we read much in modern books about various manœuvres to be practised for the purpose of freeing it from this position, such as rubbing the cornea with the finger's end, withdrawing the knife altogether and completing the incision with a scissors or bistoury, &c; while others recommend that, besides rubbing, the operator should try "to raise the eye, or, in other words, to draw it, as it were, a little out from the orbit, whilst, at the same time, he presses the cornea flat against the blade of the knife." "This," say the Messrs. Guthrie, in their work on Cataract, from which we have extracted this quotation, "is the other and the best half of the secret, and without he does which, he will not succeed in disentangling the iris." The cause of the wounding of the iris is generally timidity on the part of the operator, who hesitates, or in the slightest degree wriggles the knife, in passing through the anterior chamber. The consequences of shaving off a bit of the iris are very much overrated indeed; an irregular pupil will, no doubt, follow, but that is a matter of comparatively little moment, and not to be held in comparison with the results which may follow the bruising of the iris, or even exercising too great pressure upon it. An experienced operator, conscious of his own powers, should never hesitate, or withdraw his knife because the iris bulges over it. Our space will not permit us, however, to enlarge further upon an operation so meagrely described in the work under consideration.

To the chapter on Cataract Mr. France has added a note, describing the catoptric test, a means of diagnosis, which, as we have already stated, is most defective. Where are the instances of incipient opacity of the lens recorded, in which the disease was recognised by this test alone?

The publishers and the reading professional public are the fitting judges for the necessity of the republication of Mr. Morgan's work; but we confess we should prefer reviewing Mr. France more as an original writer than a commentator on the works of others. There is, however, a work upon the eye which we have long desired to see translated and published in English, and we feel assured Mr. France could do it ample justice; it is Beer's *Lehre von den Augenkrankheiten*," &c., originally

published in 1813, and which has had so great an influence upon the study and treatment of diseases of the eye in Europe.

The late John Morgan, the author of these Lectures, was an apprentice of Sir Astley Cooper, and commenced his professional career as a demonstrator of anatomy at a private school in the neighbourhood of Guy's Hospital, to which institution (Guy's) he was elected surgeon, conjointly with Mr. Key, in 1824. For many years he lectured on surgery in the Hospital, and to his exertions is mainly due the credit of establishing the Guy's Eye Infirmary, to which Mr. France has since succeeded. As a general surgeon and an operator Mr. Morgan was most justly esteemed, and has left some very valuable monographs on several important professional subjects. He died in October, 1847, in the fifty-first year of his age.

On the Nature and Treatment of Stomach and Renal Diseases; being an Inquiry into the Connexion of Diabetes, Calculus, and other Affections of the Kidney and Bladder, with Indigestion. By WILLIAM PROUT, M. D., F. R. S. The Fifth Edition, revised. London, Churchill. 1848. pp. 595.

AT the period when the pathology of the solidists was most triumphant,—when the forceps and scalpel were considered the chief instruments for revealing the causes of disease,—while the empire of medicine was still dazzled by the brilliant discoveries of Laennec, Brouissais, and Andral,—there was one physician, a man who had already a character of no mean eminence in science, but who stood aloof in the apparent progress of pathology, and who must have been regarded as a dreamy and antiquated enthusiast by the expert and smart anatomists who were so busily engaged around him. It was known that this man had attained a high reputation as a chemist, but in every other respect he must have seemed the relic of a former age. While the world were solidists, he was a humoralist; while other physiologists were the most absolute vitalists, he continued what had been reproachfully called "an iatro-chemist." A few short years have passed by, and what a revolution has taken place in opinion. The most eminent pathologists now tell us that but little further assistance can be hoped from mere morbid anatomy; exclusive solidism is likely to be overwhelmed by a humoralism equally exclusive, and nearly as unreasonable; and the chemical lucubrations of Dr. Prout, which at one time only escaped ridicule from personal respect for the individual, have become, when disguised in another language, the fashionable

physiological doctrines of the day. We do not hear, indeed, so much of primary and secondary assimilation, or of reducing, converting, and vitalizing processes; but the ideas remain, although the words may have been changed. Dr. Prout has in truth been the parent of the new school of chemical philosophy. It must yield him no little gratification to experience, during his lifetime, the triumph of those principles, which he was the first to enunciate, and which so long remained isolated and unsympathized with. We willingly and gratefully offer him the meed of our respectful acknowledgment of his originality and genius. If in some instances his views are too circumscribed, and in others his generalizations too sweeping, these are faults always incident to a first inquirer. Minervas do not always spring fully armed and perfected, even from the head of Jove; and Dr. Prout will excuse us (for genius is usually ingenuous) if, while admiring his talents, we fairly criticise some of his opinions.

It may seem unnecessary, at the present day, to offer to our readers an analysis of a work so long known and so widely circulated as that, the fifth edition of which now lies before us. But as we design to canvass some of Dr. Prout's doctrines with respect to certain diseases, we think we are called on to afford such a view of his entire theory as may, at least, demonstrate what are the parts of it to which we object. We shall, therefore, give a concise analysis of Dr. Prout's views, which, as we have already stated, have given birth, in a great measure, to the chemical physiology and pathology, now so generally received.

This edition is divided into three books; the first treats of Functional Diseases, or "those diseases arising from the deranged operations, and less obvious lesions of the assimilating and secreting organs." The second, of Mechanical Diseases, or "those diseases arising from obvious lesions of organs, and from the presence of calculi, &c., in the bladder." The third book, which, in former editions, preceded the other two, is devoted to the exhibition of an outline of the general physiology and pathology of assimilation; and of the secretion of the bile and of the urine. We confess that we do not regard the change in the relative position of the latter part as an improvement in the present edition. For the understanding of many passages in the parts on functional and mechanical diseases, it is necessary that the reader should be acquainted with Dr. Prout's peculiar views, and especially with his particular and unusual phraseology; and these are only explained in this part.

Dr. Prout claims, and, we believe, justly, having been the

first to announce that animals, for the most part, receive their food in a form in which it already possesses the essential composition of their tissues:

"We had previously known that the articles employed as food by animals, are essentially composed of three or four elements. But we have now learned, that all the more perfect of those matters on which animals subsist are compounds of *three or four proximate principles;* all of which compounds, except one (the saccharine), are, in their essential characters, identical with the materials composing the frame of the animals themselves. We have also learned that, owing to this identity of composition, many animals are saved the labour of forming these proximate principles from their elements; and have only to rearrange them as their exigencies may require. The task of forming the proximate principles is thus left to the inferior animals, or to plants; which are endowed with the capacity of compounding these proximate principles from matters still lower in the scale of organization than the animals and plants themselves. Hence, there is a series, from the lowest being that derives its nourishment from carbon and carbonic acid, up to the most perfect animal existing: each individual in the series preferring to assimilate other individuals immediately below himself; but having, on extraordinary occasions, the power of assimilating all, not only below but above itself in the system of organized creation."—p. 464.

Taking milk as the type of a truly natural aliment, Dr. Prout considers that the proximate elementary and staminal principles of animals consist of four great classes, viz., the aqueous, the saccharine, the albuminous, and the oleaginous classes. Under the saccharine class he includes sugar, gum, vinegar, lactic acid, starch, lignin, and, in fact, all those principles which consist of carbon united to the elements of water; the albuminous class contains not only albumen, but fibrine, caseine, glutin, gelatine, &c.; and the oleaginous class comprehends not only the fixed and volatile oils, but likewise alcohol.

It is well known that the various organic substances enumerated are capable of undergoing many transmutations. Without alteration of composition, their properties may very much differ; under the influence of ordinary chemical forces, they may change into totally new compounds; and they are indeed the least persistent of known combinations. Even where, from the similarity of properties they have obtained a common name, they present themselves to us in nature under very many varieties; thus the sugar of the cane, that of the grape, that of milk, &c., although all easily recognised as sugars, differ each from the others by many characteristic properties. Dr. Prout considers that, in many instances, these differences are due to variable

proportions of water combined in them, those containing the least water being the most firm or stable. To these he applies the epithets *strong* or *high*, while he calls those containing much water *weak* or *low;* thus we have strong alcohol and weak alcohol, strong sugar and weak sugar.

The change of a weak proximate principle into a strong one, Dr. Prout calls *completion;* the change of a low compound to a high one, or in other words, the combination with water, he calls *reduction.* The change of one proximate alimentary principle into another, he entitles *conversion.* It is absolutely necessary to keep these terms in mind, in order to comprehend his views of nutrition or of disease.

Thus he supposes the stomach to perform three functions as regards the aliment with which it is stored: these are *reduction*, *conversion*, and *vitalization.* The two former terms we have explained; the last is more difficult to comprehend, but by it is meant that the food acquires in this viscus those vital attributes which enable it subsequently to become part of the living system. The function of the lacteals is contrary to that of the stomach; it is *completing* instead of *reducing*, but it is also eminently *vitalizing.* The process of *completion*, or separation of water, is perfected in the lungs. All these processes, collectively, constitute what Dr. Prout terms *primary assimilation. Secondary assimilation*, being identical with what Liebig calls the *metamorphoses of tissues*, we need not stop to describe. It is enough for the present to say, that Dr. Prout originated the doctrine, that the various excretions, such as urea, uric acid, carbonic acid, &c., all proceed from the waste or destruction of structures which had once formed constituent parts of the organism.

This rapid notice of the chemico-physiological theory of Dr. Prout will enable our readers to comprehend his pathological opinions. The following quotation, from the commencement of the first book, will explain these opinions in his own words:

"The proximate alimentary principles by which the existence of animals is maintained, though much modified by the assimilating processes, are essentially the same as those principles of which animal bodies consist. This important fact being now generally admitted, we have here to show, that the processes by which alimentary matters are assimilated in animal bodies are constantly liable to be deranged both in degree and in kind; that such derangements of the assimilating processes are manifested by corresponding derangements in the nervous products secreted from animal bodies by the organs designed for such purposes, and particularly by the kid-

neys and liver; and, lastly, that the relations between the deranged products of secretion and the proximate principles by which animal existence is sustained, and of which bodies consist, enable us, in many instances, to acquire a more correct knowledge of the organ deranged, as well as of the nature of the derangements, than can be obtained by any other means."

The above quotation developes, although in a very cautious and guarded manner, Dr. Prout's peculiar pathological views. The various excretions are the products of secondary assimilation; they proceed from the waste or destruction of tissues, which are themselves built up from a pabulum prepared by primary assimilation. If any of the functions which collectively constitute assimilation, viz., *reduction*, *conversion*, *completion*, *gelatification*, or the decomposition of albumen into gelatine and carbonic acid, under the influence of the respiratory process in the ultimate capillaries, *albumification*, or the change of the fluid albumen of the blood into the solid albumen of the tissues,—whenever any of these functions, we say, remain in abeyance, or are imperfectly performed, then the observer will find such an alteration of the excretions from their ordinary condition, as will point out the nature and kind of disordered functions.

It is obvious that, in accordance with the foregoing views, Dr. Prout necessarily regards abnormal modifications of the urine or other excretions as indicative of disorder of the assimilative functions performed by the various organs, particularly the stomach, rather than as evidence of local disease in the secreting gland. It is thus that he regards the connexion between diabetes, calculus, and other affections of the kidney and bladder, with indigestion. Diabetes, according to him, is the consequence of excessive activity of the reducing function, and diminished energy of the converting function of the stomach. The presence of oxalic acid in the urine depends on the converting functions of the stomach being wrongly performed, as a consequence of which oxalic acid is formed out of sugar in place of the proper pabulum for assimilation. The lacteals may be equally defective in the performance of their functions; they may not sufficiently convert and complete the chyle which they carry, and this chyle becomes consequently unfit for vitalization, and, being deposited in the lungs, gives origin to tubercles! Not only may primary assimilation be thus deranged, but you may also have secondary mal-assimilation; *gelatification* may be too much or too little active; the production of urea or lithic acid may take place in too great or deficient quantities. Frequently the observer may determine

the source of certain excretions, by the incidental mineral ingredients by which they are accompanied. Nay, by the relative quantities of these incidental mineral matters, there can be learned the degree of activity with which secondary assimilation takes place in certain tissues. Thus, the presence of abundant crystalline phosphates in the urine, indicates a rapid destruction of the nervous tissues.

Now a *diathesis* is a persistent mal-assimilation. As the morbid excretion is the index of the nature of this disordered function, the name of the excreted principle is prefixed to the diathesis as a trivial or distinctive appellation. Thus we have the saccharine diathesis, the oxalic acid diathesis, the lithic acid diathesis, the phosphatic diathesis, &c.

We have sought to lay before the reader, in the previous pages, as lucid and accurate a description as we are capable of effecting, of Dr. Prout's physiological and pathological opinions. We have been forced, from the limited space which the arrangements of this Journal permitted, to pass in silence many interesting details. We have omitted to express our opinions of many propositions necessary for the maintenance of this theory, from which we dissent. But we have endeavoured faithfully and impartially to explain the broad features of the pathological doctrines through which Dr. Prout connects the functional derangements of the stomach and kidneys. The simple questions are, if these views be borne out by clinical experience; and if they are calculated to facilitate the attainment of that principal object of physiological inquiry, the successful treatment of disease?

There never was a hypothesis, no matter how essentially absurd, which gained the attention and assent of considerable numbers, and which did not possess some portion of truth for its starting point. Homœopathy, hydropathy, even mesmerism,—none of these medical heresies are destitute of a greater or less number of ascertained facts, which appear to favour their pretensions. We do not attempt to include Dr. Prout's theory in the same category with the unphilosophical absurdities referred to; but we have alluded to them as extreme instances in illustration of the proposition, namely, that we are not entitled to infer the truth of a theory, because we happen to find it connect, in a felicitous manner, some admitted facts. Thus, it is true that disease of the cellular tissue is apt to occur in diabetic patients; and that the hypothesis that sugar in the urine in such cases proceeds from secondary mal-assimilation of the gelatinous tissues, most ingeniously explains this connexion. But we are not, therefore, to infer that the hypothesis

is the expression of a truth, no more than the observation of certain pseudo-syphilitic phenomena following the abuse of mercury ought to justify us in accepting all the ravings of Hahnemann. The advance of knowledge will generally develope the fallacies which lurk under such explanations. Thus, with respect to the coincidence alluded to, if a secondary mal-assimilation of the gelatinous tissues be the source of the sugar in diabetes,—and if, as Dr. Prout supposes, urea be the chief normal product of the secondary assimilation of these tissues, when healthily performed,—then the urea ought to disappear according as the sugar presents itself; the latter principle ought, in fact, to be vicarious of the former. This was actually, at one time, Dr. Prout's own doctrine, and, deceived by his theoretic prejudices, he was led to announce that the urea was always deficient in the urine of diabetes. This error was exposed by Sir Robert Kane, in the former series of this Journal, who demonstrated that the entire quantity of urea excreted by an individual labouring under diabetes, during the twenty-four hours, was fully equal to that passed in a state of health. Now, this fact once proved, the hypothesis in question necessarily falls to the ground.

Secondary mal-assimilation of the nervous tissues produces the phosphatic diathesis. But Dr. Bence Jones has shown that, in the great majority of diseases effecting the nervous centres, the urinary phosphates are unchanged in quantity; and Dr. Aldridge has demonstrated in the former series of this Journal, that the quantity of phosphoric acid secreted in cases of the so-called phosphatic diathesis, is usually less than in health or in other diseases.

But what practical benefit do we gain by bewildering ourselves among these misty diatheses? Have we not been long enough giving alcalies for the lithates, and acids for the phosphates; gorging the miserable diabetics with fresh meat; and combating symptomic phantoms, while the natural realities of disease are eluding our observation. The existence of certain essential diseases is now too well established to be denied, and, fortunately, it is their nature in many instances to limit their duration; so that if the systemic powers be supported, and local complications be avoided, ultimate restoration may be hoped for. But, in essential diseases, your patients recover; for the most part they are not cured: your therapeutical resources are, in such cases, palliative, and not aggressive. Ague is, certainly, a remarkable exception to this rule; and the complications of essential diseases are often capable of being combated successfully; but in the great majority of these diseases, in

typhus, scarlatina, small-pox and measles, scurvy, purpura, and syphilis, you can do little more, in their simple forms, than to support the strength and watch for complications. The diseases you can really cure, with definite views and assured remedies, are local diseases; and for this reason, the pathologist who can with truth transfer a disease from the essential, to the symptomatic category, confers an enormous practical benefit on the therapeutist. We look on the discovery that simple inflammation, whether acute or chronic, changes the chemical reaction of the urine on test papers,—or that the secretion of organizable albumen from a mucous membrane is an evidence of acute, while that of pus or mucous globules is a sign of chronic inflammations,—we regard, we say, the determination of these simple and intelligible facts as of infinitely greater practical importance to the physician than the sublimest theory that ever emanated from the most ingenious physiological speculator. This may show us to be very superficial, nay, narrow-minded and grovelling; but we are glad to find such men as Rayer, Becquerel, and Lecanu, Bird, Christison, and Brodie, coinciding, by the evidence of their labours, in our estimation of simple facts, judiciously observed and *generalized*.

We honour the originality, genius, and industry of Dr. Prout; we do not agree with many of his peculiar theories; yet we strongly recommend his book to the practical physician. This recommendation is indeed unnecessary as to a book which the profession has so long stamped with its approbation. In truth, the descriptions which it contains of disease are usually excellent, and the treatment recommended is, for the most part, judicious and admirable; and in no respects more so than in those instances in which his experience prompts him to prescribe in direct opposition to the tendency of his own doctrines.

Lectures on the Physical Phenomena of Living Beings. By Carlo Matteucci, Professor in the University of Pisa. Translated under the Superintendence of Jonathan Pereira, M. D., F. R. S., &c. London, Longman. 1847. pp. 435.

The publication of this translation has constituted a very important addition to our literature. We wanted much an easy and familiar exposition of the discoveries of modern science, in their applications to physiology. But in this instance, as in many others, it requires no mean qualifications to write a sim-

ple and popular treatise. In truth, an author must be master of his subject who would attempt to write a Manual. How often do we meet with handbooks on this or that subject, which have been evidently written by persons crammed for the purpose, and who had manifestly struggled from frontis-page to finis, "with chaos and blunders encircling their heads," proceeding from the fumes of mental indigestion. But Signor Matteucci is the individual most eminently qualified, from education and habits, for the task which he has undertaken in this instance. His researches on many of the most important applications of physical science to the explanation of the phenomena of organized beings, have long been before the scientific world; and the present volume shows that he can write for the student just as appropriately as for academies and institutes.

We shall make two short extracts, to demonstrate how far this eminent physician is from that exclusiveness which had hitherto been the bane of physiology:

"Examine those phenomena of living bodies, which, if I may be permitted so to call them, are *the most physical, the most chemical*, and you will find considerable differences in the mode of action of physical and chemical agents in the organism,—differences which are inexplicable in the present state of our knowledge of the laws governing these forces. Does not the phenomenon of vision itself, which may be termed a purely physical phenomenon, present peculiarities which remain up to the present moment unexplained? If the latest discoveries in science enable us to account for the distinctness of vision at all distances, and the absence of colour on the edges of the image, how, by the aid of physical laws, can we explain the perception of a single object in its natural position, by a double and inverted image? What could we not say of hearing and the voice, which are simply effects of some particular vibration of the air, propagated by solids, according to the general laws of acoustics? To questions such as these science can give no completely satisfactory answer."—p. 7.

"If Newton had called the force which rules the wondrous system of the celestial machine, merely attraction, or attractive force, his name would long since have fallen into oblivion; but by demonstrating that attraction is exercised in the direct ratio of the masses, and in the inverse ratio of the squares of the distance, and by thus unfolding the eternal laws of this force, Newton has rendered his name immortal."

"To speak of the vital forces, to give them a definition, to interpret phenomena by their aid, and yet to be ignorant of the laws which govern them, is doing nothing, or rather it is doing what is worse than nothing. It is to attempt an impossibility, it is to content the mind to no purpose, to stop the search after truth. To state that the liver separates the elements of the bile from the blood by

means of the vital force, is nearly to assert that the bile is formed in the liver. By thus varying the expression a dangerous illusion is established."—p. 13.

These sentiments, so well expressed, are those which should always guide the physiologist in his researches. It only remains to say, that, as might be expected, Dr. Pereira has proved a most judicious editor.

Pocket Dispensatory and Therapeutical Remembrancer, comprising the entire Lists of the Materia Medica, Preparations and Compounds, with a full and distinct Version of every practical Formula, as authorized by the London, Edinburgh, and Dublin Royal Colleges of Physicians, in the latest Editions of their several Pharmacopœias, to which are subjoined copious relative Tables, exemplifying approved Forms, under which compatible Medicines, &c., may be contemporaneously combined, &c. &c. By John Mayne, M. D., L. R. C. S. Edinburgh. London, Churchill. 1848. Post 8vo., pp. 271.

Printed in Edinburgh and published in London, a more useless medical publication has, we think, rarely, if ever, issued from the press of either city. It purports to be a "Ready Reckoner" for the prescriber as well as the dispenser of medicines, but the information that either will find in it is of so commonplace a character, and frequently so very erroneous, that an apothecary's apprentice, of even two years' standing, would, we venture to say, be a better authority.

To prove that we are not speaking too harshly, we shall refer to the very first medicine noticed in the book,—*tartar emetic.* And first, in what class of remedies do we find it placed? Under the head of alteratives or deobstruents! If a student at his examination gave us such an answer, we would be almost inclined to reject him. But what is said about this most valuable medicine?—

"*Use.*—(*Intl.*). In chronic dyspepsia (combined with opium it has been found highly serviceable in delirium tremens), pneumonia, pleurisy (after employment of venesection), cutaneous diseases. Dose $\frac{1}{2}$ – 1 grain, generally combined with other medicines."

With the exception of the officinal names, this is the sum total of the information about tartar emetic to be found in Dr. Mayne's book, announced in the preface to be "an abridged *practical* formulary of the three British Pharmacopœias."

PART III.

REPORTS, RETROSPECTS, AND SCIENTIFIC INTELLIGENCE.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

THE DIGESTIVE SYSTEM.

1. Dr. Woodroofe exhibited a *papier maché* cast of a peculiar form of hepatic disease, and read the following explanatory communication from his friend, Dr. F. Oliffe, of Paris :

"*Observations on a peculiar Case of diseased Liver.*—I beg to present to the Pathological Society of Dublin the cast of a liver affected with a peculiar disease, one which, I believe, has not yet been described by authors. I have denominated it 'Purulent Catarrh of the biliary Ducts.' The following is a brief statement of the case, which occurred in my private practice :

"Mr. ——, aged 46, of a robust constitution, had enjoyed uninterrupted health, with the exception of an attack of 'jungle fever,' which he experienced in Bengal, about twenty-five years since. At that period, according to the report of the patient, no symptoms of acute hepatitis appeared. On his return from the East, Mr. —— complained of nausea which incommoded him in the morning fasting, but which, though it continued for several years, did not seem to impair his general health. About eighteen months before I saw him he was seized at Venice with intermittent fever, the type of which is not mentioned, and which yielded to the exhibition of sulphate of quinine. Four months afterwards he was attacked with jaundice. Having recovered, he removed to England, where he continued to reside for twelve months, during which time his health was excellent. He came to France in the month of November, and towards the middle of December he was seized with a febrile paroxysm (rigor, heat, perspiration), which was succeeded by a complete loss of appetite, and general debility. I was called in on the 1st of January. His face was pale, and presented a slight ictetic hue; the sclerotic was faintly tinged with yellow; he had no appetite; the tongue was covered with a thick yellowish fur ; the urine was saffron-

coloured, but the alvine discharges were normal, both in colour and consistence. The hepatic region offered no prominence; but, on percussion, I found that the liver extended abnormally into the thorax, although its inferior border did not pass the ribs. The remaining abdominal viscera appeared to be sound ; and no abnormal phenomena could be detected either in the lungs, or in the heart. The febrile paroxysms, which were renewed at irregular periods, were similar, in every respect, to those of intermittent fever. In order to stimulate the hepatic functions I prescribed pills containing calomel, colocynth, and hyosciamus. I also directed frictions with the unguent. hydrarg. over the hepatic region. This treatment produced little or no amendment, and I determined on administering the sulphate of quinine. I was surprised to observe the fever, which had heretofore been irregular in its character, assume the tertian form. The sulphate of quinine seemed at first to produce wonderful results. In ten days the paroxysms had ceased ; the tongue became clean ; and the patient was much gratified at this favourable change. But the improvement was of short duration ; the fever soon returned and became continuous, with evening exacerbations ; the tongue became dry ; the general debility was considerable, and the patient rapidly lost flesh. There was no pain whatever in the hepatic region, either during this or any subsequent period of the disease.

"Dr. Chomel and and Sir R. Chermside having been called in consultation, diagnosed an organic affection of the liver, but were unable to specify its nature. A slight effusion having taken place in the peritonæum, diuretics were employed, but without success. On the 4th of February, about seven weeks from the invasion of the symptoms, diarrhœa supervened, the debility became extreme, and in a few days afterwards the patient expired.

"*Autopsy.*—Abdomen. The stomach was distended with gas, and the left lobe of the liver was rather prominent in the epigastrium. The peritonæum contained about a quart of citrine-coloured serum. The liver was the subject of our special observation. Its inferior margin did not extend beyond the ribs, but superiorly it was enlarged ; it pushed up the diaphragm considerably into the thorax, and reached to the level of the *fourth* rib. A finger introduced into the transverse fissure, produced a rupture of the hepatic tissue, from which issued about ℥vi. of yellow creamy pus. We then detached the liver and examined it. In the middle of the superior surface of the right lobe was a circular eminence of a dark brown colour, studded with black spots. On incising this tumour a quantity of pus oozed through numerous orifices ; and the same occurred after the incisions made in different parts of the organ. A female catheter introduced into several of these orifices penetrated into ramified canals, which were found to be biliary ducts. In order to form an accurate knowledge of the source from whence the pus was furnished, we placed the liver on its convex surface, and, taking the ducts at the fissure, we pursued them in their divisions. They were much dilated, and *all* contained pus coloured with bile. Their mucous mem-

brane was softened and of a black colour; the gall-bladder contained a small quantity of dark-coloured bile, and four small calculi; its mucous membrane was red, and rather softened; the vena porta and the hepatic veins were next examined, and were found to be *perfectly sound;* the parenchyma of the liver was likewise healthy; the spleen was normal; there was no pathological alteration in the stomach nor intestinal canal; the heart was rather large; the pulmonary parenchyma remarkably sound. The other viscera presented nothing worthy of observation.

"From what precedes I conclude,

"1. That the liver alone, among the organs, was pathologically affected.

"2. That the anatomical lesion occupied primitively and exclusively, the biliary ducts, in their passage through the hepatic substance.

"3. That it was impossible to recognise, during life, a lesion so singular, and so obscure.

"J. F. Oliffe, M. D.,
"Late President of the Parisian Medical Society; Member of the Anatomical Society of Paris, &c.

"2, *Rue St. Florentin, Paris.*" —*March* 8, 1845.

2. *Peritonitis consequent on Ulceration of the Appendix Vermiformis.*—Dr. Lees presented a recent specimen of perforation of the vermiform appendix. The subject of the case, a robust young woman, aged 20, who had suffered from pain in the abdomen and occasional vomiting six weeks ago, was suddenly attacked by severe pain in the ilio-cæcal region, on the evening of the 11th March. This pain, which had not been preceded by rigors, rapidly extended over the abdomen. On the following day (12th March) she took some castor oil, part of which she rejected by vomiting. The bowels were, however, moved, but the vomiting continued; the matter thrown up was of a dark red colour. Medical advice was then procured, but the symptoms increased in severity, the abdomen became swollen and very painful, and the vomiting more urgent and distressing. Under these circumstances she was brought into the Meath Hospital on the evening of the 14th, and on the next morning was seen for the first time by Dr. Lees. She was lying on her back, with her knees slightly drawn up, her countenance anxious and livid, tongue dry and furred. Her thirst was intense, and she was vomiting every few minutes, and without much effort, a fluid of a light brown colour, of which there was sometimes but a mouthful, at others as much as half a pint. The bowels were confined, the surface of the body cold and clammy, the abdomen tympanitic, and painful on pressure. The pulse was imperceptible at the wrist, but could be felt in the brachial artery; the action of the heart was regular, and both its sounds audible; its contractions were 103 in the minute. She complained that she had no sleep since her illness commenced. Dr. Lees considering that perforation of the intestine had occurred, and that the case was now

hopeless, merely directed a pill containing a grain of opium to be given every hour, and also stimulants to promote reaction. The patient died at 2 o'clock on the morning of the 16th.

Autopsy.—The usual results of acute peritonitis were obvious immediately on laying open the cavity of the abdomen ; the omentum was vascular, and coated with lymph ; the intestines were distended with air, and there was lymph deposited on their peritonæal surface : some fluid effusion was found in the pelvic region. The question now occurred, what was the cause of the peritonitis ? The patient had described the pain to have commenced in the iliocæcal region ; careful search was therefore made in this situation to discover the primary lesion to which the inflammaton had succeeded. The appendix vermiformis, near its junction with the intestine, presented a large, sloughy-edged ulceration which had perforated the tube. On laying open the appendix, there was discovered in its remote extremity another ulcer, which, however, had not perforated. In the cæcum there were some superficial ulcers.

Dr. Lees remarked, that in this case no concretion was found within the appendix, contrary to what has been obsérved in many similar cases. The situation of the appendix in these cases is a matter of some importance, as Dr. Burne has observed in the Medico-Chirurgical Transactions, vol. xx. ; because when it lies across the psoas muscle it may become adherent, and if an abscess forms it may point externally, or it may become connected to some portion of the intestinal tube, into which it may open and evacuate its contents.—*March* 22, 1845.

3. *Rupture of the Spleen from external Violence.*—Mr. Hamilton exhibited a specimen of rupture of the spleen, the result of accident, and gave the following history of the case :

E. White, aged 17, a sweep, fell down the inside of a chimney on the 14th of March, 1845, and in the fall was struck in the epigastric region by a projecting brick. He was slightly stunned, suffered intense pain, and shortly after the occurrence of the accident was attacked with vomiting. These symptoms, attended with ardent thirst and total loss of rest, continued until his admission into the Richmond Hospital on Tuesday the 18th. His bowels had been acted upon several times since the receipt of the injury, but no blood was observed in the discharges either from the intestines or from the stomach.

When admitted he exhibited signs of great depression. He was scarcely able to stand without assistance; his extremities were cold; his skin had a yellow tinge ; his pulse was 73, feeble, irregular, and intermitting. He screamed with pain, and the epigastric region was tympanitic and exquisitely tender to the touch.

19th, Wednesday. He slept a little last night, but frequently awoke and started up in terror. He now raves almost incessantly, and mutters frequently to himself : the tenderness of the abdomen has become more extended, and the tympanitis has increased. He died at 3 o'clock this day, the sixth after the receipt of the injury.

Autopsy.—On laying open the cavity of the abdomen, the peritonæal surface of the intestines appeared injected, but there was no effusion of lymph or pus. There was, however, a considerable effusion of bloody serum, and when the stomach was raised, a large quantity of black blood was seen ; and, upon further examination, there was discovered a transverse rupture of the spleen at its upper and inner part : the serous and fibrous coverings of the organ were torn to the extent of three inches. There was some bloody serum in the pericardium.

In this instance the symptoms were those of effusion into the abdominal cavity; but Mr. Hamilton, on carefully examining the case, along with others which had been recorded, could not fix upon any one symptom pathognomonic of the particular lesion which had occurred. The vomiting, which was so constant a symptom in this case, forms an equally prominent feature in lesions of other abdominal viscera.—*March* 22, 1845.

4. *Stricture of the Colon.*—Dr. Law exhibited a specimen of stricture of the colon, taken from the body of a woman aged 32, but whose haggard appearance would have made him suppose her at least 50. A month previous to her coming under Dr. Law's care she had been treated for dropsy, which disappeared, but on its disappearance diarrhœa supervened, which the physician under whose care she had been attributed to the use of imperial or cream of tartar water, an opinion which Dr. Law conceived to be very probable from the symptoms she exhibited when he first saw her. Her tongue was of a bright red colour, such as intimates gastro-intestinal irritation; and when he attempted to ascertain, by pressure, if the parts within the abdomen were in a state of irritation, he was in a great measure prevented by the rigid contraction of the abdominal muscles. This, however, he took as an indirect proof of the existence of intestinal irritation, regarding it as the result of a true reflex action. Her diarrhœa was very distressing. Leeches and poultices applied to the abdomen, with opiates and astringents, afforded considerable relief for several days. However, at the end of a week she complained of a great increase of pain in the abdomen, for which Dr. Law directed a large number of leeches to be applied. She, however, would not consent to have them put on, alleging that stupes, which had been directed to be applied first, had almost entirely removed the pain. She only survived this examination of her symptoms about thirty-six hours.

Post mortem examination discovered an effusion of about three ounces of pus in the pelvis. There was a quantity of lymph spread on the intestines. The visceral peritonæum was very vascular, and the intestines themselves had the thickened feel that they so commonly have in peritonitis, and which is due to effusion into the subserous cellular tissue. The mucous membrane of the small intestine, through its entire extent, was highly vascular. This vascularity did not extend to the large intestine. The transverse arch of the colon was much larger in its calibre than

usual, but where this portion meets the descending it was so contracted as not to admit the point of the little finger. The stricture Dr. Law attributed to a cicatrix where ulceration had formerly existed, and had identified the matter of cicatrix with the fibro-cellular structure developed in the liver, kidneys, lungs, &c., and in all these situations exerting its contractile property on the organs, and provoking in them modifications not alone of form but also of function, and thus giving rise to phenomena varying according to the organ in which such structure is developed. Its development in the different canals, through which different materials upon whose elimination from the system its well-being depends, gives rise to the most serious consequences, as in the instance in question. It is this anatomical element also, which, constituting the material of the cicatrix in burns, by its contraction so often produces deformities and inconvenience, to correct which the efforts of surgery are so unsuccessfully employed. Microscopic observation has established the identity of the structure developed in these different situations, and under such different circumstances, proving that there is in them all the same mode of growth, the cell in all becoming elongated in two opposite directions so as to acquire a spindle shape, and in the progress of its growth the acuminated process of this spindle-shaped cell being further lengthened till fibres were formed. .

Such is Schwann's description of the formation of cellular tissue in the fœtus. A similar transformation of cells into fibres has been observed in the production of the fibrous tissue of false membranes, and also in granulations. Eichholtz, speaking of cirrhosis of the liver, calls it "the liver provided with cicatrix tissue."

Dr. Law alluded to the contracted portion of the intestines situated below the stricture; and this contraction he attributed partly to the small quantity of fæces that now habitually traversed it, but mainly to an extension of irritation of the mucous membrane (the condition of this membrane yielding abundant evidence of such irritation having existed) to the submucous cellular tissue, and its consequent transformation into fibro-cellular tissue. It was, in fact, the same formation as that which constituted the stricture, but less developed.

This woman had been in hospital four years ago, for an abdominal affection marked by local tenderness, for which she had had frequent applications of leeches and fomentations. She also had irritable stomach and constipated bowels. There was no note then taken of her case, but reference to the prescription book warranted the conjecture that the original irritation existed so far back as that time.—*December* 20, 1845.

5. *Strictures of the Œsophagus.*—Dr. Kirkpatrick exhibited an œsophagus, in which two strictures existed, one at the pharyngeal, the other at the cardiac extremity of the tube, the intermediate portion of which was healthy. The patient, James Mahon, aged 50, only applied for medical assistance four months before his death, and when Dr. Kirkpatrick first saw him, the usual symptoms of stricture of

œsophagus were present ; he could, however, swallow liquids. The pharynx had an inflamed appearance, and there existed so great an amount of tenderness upon pressure about the upper part of the œsophagus as to lead to the suspicion that ulceration had been established. After some time he completely lost the power of swallowing liquids, and it became necessary to support him by means of injections of broth, &c. He died of an attack of acute pneumonia.

The *post mortem* examination showed that the strictures were not produced by any malignant growth, but were the result of the deposition of scrofulous matter in the submucous cellular tissue. A middle-sized catheter could with difficulty be passed through the contracted portions of the tube.—*December* 20, 1845.

6. *Intussusceptio.*—Dr. Harrison exhibited an example of a very rare form of this disease, and gave the following history of the case:

James Kavenagh was admitted into Jervis-street Hospital 16th of June, 1844. He resided about ten miles from Dublin, and had been under the care of my friend, Dr. Gason, of Enniskerry, from whom I received the following particulars of his illness :

" He had been in the enjoyment of good health until about six weeks since, when, having been exposed for several hours to wet and cold, being engaged in washing sheep in a river, he was seized on the following day with violent spasms in his bowels, principally in the course of the colon ; his sufferings were very intense, though with such remissions as to allow him to occasionally resume his labour for a short time ; a return of the violent spasms, however, would compel him to desist. About three weeks since he had such an attack ; he had frequent bilious vomiting, and violent colic pains in the bowels. About this time also he suffered from suppression of urine, and most urgent spasmodic pains in the lumbar region. The catheter was introduced, but not more than a tea-spoonful of clear urine flowed. An anodyne was administered, and in a short time he passed a large quantity of clear urine. He continued for several days in this state of severe suffering from spasm in the bowels, and violent vomiting, with occasional almost perfect intermissions for several hours together. On Saturday last he was seized with a very violent attack of pain and tenesmus. Within the last few days his urine has been scanty and high-coloured; the bowels have been in general obstinately costive from the commencement of the illness, though occasionally an attack of griping and diarrhœa sets in ; the discharge is thin, brownish, and very fetid; the pulse has not passed 72, and has generally been soft and full. From the commencement to the present time, the treatment has been varied according to the symptoms : venesection, leeches, and cupping ; purgative enemata and opiates ; turpentine, fetid and tobacco injections, and calomel continued in small doses to salivation. Although these several means frequently relieved urgent symptoms, yet they have effected no material improvement, and within the last few days his strength and general health have rapidly declined, and he is now anxious to be admitted into hospital."

On admission into hospital I made a careful examination of the abdomen, and detected a tumour between the stomach and umbilicus, moveable, and painful on pressure: the man appeared much emaciated, and presented many of the characters of one labouring under some malignant visceral disease. He stated that occasionally he was free from pain; and whenever he had an evacuation of fluid or air from the bowels he felt great relief; that the desire to do so was occasionally most urgent, and the pain insupportable until it was accomplished. Before his efforts for this purpose could succeed, his sufferings were very violent, not only about the umbilicus but all over the abdomen, and were frequently attended by vomiting. He sometimes felt a natural and even an urgent desire for food, but was latterly almost afraid to indulge it, as he found that very generally he suffered an attack of spasms and vomiting in some hours afterwards. I felt very uncertain as to the nature of the disease. I was disposed to regard the tumour as seated either in the omentum or in the walls of the colon. It is unnecessary to detail all the particulars of the treatment which was adopted; I shall merely observe, that the only remedies which afforded even temporary ease were large opiates, frequently administered, and mild aperient enemata. We generally succeeded in obtaining some evacuations from the bowels every day, or every second day, but the discharge was at all times thin and scanty, and never contained any solid fæcal matter.

He remained in hospital under my care for one month, and feeling that he was gradually losing his strength, he was anxious to return home to end his days with his family. On his discharge I directed him to place himself again under Dr. Gason's care in the country, which he accordingly did.

Dr. Gason reports to me that he continued in much the same state as before for about a fortnight, except that his general health and strength very rapidly declined. A few days previous to his death he had diarrhœa; the urine, which had been abundant, became very scanty, and for some days previous to his decease, ceased to be secreted; he continued free from fever, his pulse never passing 72. Forty-eight hours after death the body was examined. On opening the abdomen the stomach and bowels appeared unusually distended, chiefly with flatus and fluid, there being very little solid matter. There was no appearance of general inflammation in the peritonæum or intestines, except about the transverse and left colon, a little below the stomach. Here there appeared a firm tumour, of a dark, congested appearance: the omentum about it was much thickened and corrugated. This tumour evidently involved the colon, but was limited to a short portion of it. Dr. Gason removed it, first dividing the transverse and then the left descending colon. As the relations and friends were present he could not make any special examination of this mass, but on the following day he sent me the parts he removed, which I have carefully examined, and an accurate description of which is here subjoined.

The preparation itself is in the Anatomical Museum of Trinity College. On opening out the omentum, as far as its thickened condition would admit, the colon came into view, the large tumour on which was caused by an intussusceptio of a considerable portion of it, the lower or left colon being drawn upwards into the transverse portion, a direction quite unusual for an intussusceptio of any part of the intestinal tube to take, as in almost all cases it is the upper portion of the tube which is received into the lower ; the colon on either side of this was tolerably healthy, but through the extent of the tumour, which was about four inches long, the intestine was hard, thickened, and of a very dark colour, but by no means in a gangrenous state. On opening the colon in its transverse or right portion, the protrusion of the lower or left portion was very distinct ; it projected for at least an inch and a half, and was surrounded by a deep narrow sulcus between it and the enclosing portion: it was not unlike the appearance of the os uteri projecting into the vagina. Near the centre of this projection a small irregular orifice was observable, partially covered by a ragged, ulcerated, mucous surface. A flexible bougie passed into this was conducted, with a little management and pressure, through the tumour in a tortuous course, and appeared in the cavity of the left descending colon. The length, the narrowness, and tortuosity of this passage satisfactorily accounted for the difficulty of obtaining any solid alvine evacuation. The mucous surface of the invaginated portion of intestine was ulcerated, with a few dark shreds hanging from it, but there was no tendency to gangrene, as had occurred in some recorded cases of ordinary or progressive intussusceptio, in which several inches of the intestine have been discharged, and life preserved ; in this case there was rather a tendency to remove the included portion by the process of ulceration.—*January* 17, 1846.

7. *Follicular Disease of the Intestines.*—Dr. Law said the specimen of diseased intestine which he now exhibited had been taken from the body of a young woman who was admitted into Sir Patrick Dun's Hospital on the 27th, and died on the 30th of the present month. Her mind was wandering on her admission, so that no information could be obtained from her; and the only account which the person who brought her to the hospital was able to give was, that her illness had begun eight days previously, with rigors, followed by febrile symptoms, consequent on exposure to cold. Shortly after her admission diarrhœa set in, together with involuntary discharges : the pulse was 140, and presented the character to which the term dichrotous is applied; the heart's action was very feeble; the abdomen was not tympanitic or painful on pressure; there was no gargouillement over the ileo-cæcal region, nor any red spots over the surface of the abdomen. On the 30th she was suddenly attacked with severe dyspnœa; a considerable quantity of blood frothed from the nose and mouth; and in an hour afterwards she was dead.

Autopsy.—On examination after death, both lungs were found

infiltrated with blood to a greater degree than Dr. Law had ever seen in any previous instance of pulmonary apoplexy. The heart and its valves were healthy; the muscular structure of the organ was remarkably firm. The different portions of the small intestine were then laid open in succession, commencing at the pylorus, but there was scarcely any appearance of disease until the ilium was approached: here the intestinal glands were found more in relief than natural, forming elliptical patches, whose long axis corresponded with the length of the intestine; lower down, these glandular masses became still more projecting, until, at length, they resembled the prominences of button scurvy. In some places they presented elevated edges and depressed centres, like the pustules of small-pox; and, further on, many were in a state of ulceration, the ulcers becoming larger and more numerous the nearer to the termination of the ilium they were situated. Their surfaces seemed to consist of cellular tissue in a state of slough. The mesenteric glands in the immediate proximity of the ulcers were enlarged and red. These appearances ceased at the ileo-cæcal valve; on the cæcal aspect of which there was scarcely any trace of disease. Dr. Law remarked that he had never seen so great an amount of disease established in so short a period as in this case, the entire duration of which was only eleven days.

It was stated by Louis, that he had always found this species of lesion to be accompanied by considerable tympanitis, diarrhœa, gargouillement over the ileo-cæcal region, and red spots over the surface of the abdomen; but, in the present case, all these symptoms, with the exception of the diarrhœa, were absent.—*January* 31, 1846.

8. *Appearance of the Intestines in a Case of Fever.*—Dr. Greene observed that, as Dr. Law had just exhibited a well-marked specimen of dothinenterite in a case of fever, he would take the opportunity of contrasting with it the morbid appearances of the intestine in a man who died in the Hardwicke Fever Hospital. In Dr. Law's case, the usual symptoms of the local affection, so accurately described by Louis, were not present,—to the same extent, at least, as usually occurs. These symptoms, general and local, are shortly as follows:—diarrhœa preceding the fever for some days, the discharges presenting an ochrey colour; deep-seated pain, with an appearance of fulness, and the development of gargouillement on succussion in the ileo-cæcal region; sudamina thickly scattered over the region of the valve, with red patches over the rest of the abdomen, which is in the state of meteorismus. These local symptoms, with a weak pulse and profound prostration, and an indifference to surrounding objects, constitute a group of phenomena which Louis found so constantly in connexion with follicular disease, as to lead him to suppose they were almost pathognomonic of the lesion of which Dr. Law had just exhibited a specimen. Dr. Greene stated that he considered Louis's description so accurate, that, whenever he met the group of phenomena just detailed in

fever, he invariably inferred that follicular disease of the intestine existed; and, in the case he was about to detail, the absence of these symptoms induced him to state that the intestine would not be found in the diseased condition described by Louis.

In the present instance the patient was attacked with the usual symptoms of the exanthematic typhus fever of this country. He recovered from the fever, but it was observed that his convalescence was slow and imperfect. Dr. Greene here remarked that, whenever this occurs, there is reason to fear that the impediment to recovery is owing to some local lesion, either setting in with the fever or developed during its progress, which lesion may be situated in any of the cavities. In this case the patient complained a little of tenderness in the abdomen, but there had been no diarrhœa, and the motions were not unhealthy-looking; the abdomen was retracted, and its surface dry. The tongue was red and the patient complained of thirst. These were the principal symptoms, and he would now exhibit the intestine. The mucous membrane was highly vascular, particularly for some distance above the ileocæcal valve, but there was no enlargement of the glands, far less any appearance of ulceration; the membrane was soft, and the vascularity occupied the whole area of the intestine: neither were the mesenteric glands enlarged.—*January* 31, 1846.

9. *Stricture of the Rectum; Communication between the Intestine and the Bladder.*—Mr. Hamilton exhibited a preparation taken from the body of a person who, during life, had passed fæces from the bladder. He was attended by Dr. Nalty, and had been seen at different times, in consultation, by Sir Philip Crampton, Sir Henry Marsh, and Mr. Hamilton. He was sixty-eight years of age, not emaciated, but presenting that peculiar sallow aspect that persons affected with malignant disease often have. When Mr. Hamilton first saw him in June last, he complained of pain and frequent desire to pass water; and, on examining the urine, yellow feculent matter was seen at the bottom of the vessel. He had been ill for some time, but had only a few days before felt a sense of uneasiness and weight, referred to the bladder, soon after which the urine deposited a thin, puriform matter, and then followed the feculent discharges from the urethra.

It was supposed that some malignant disease existed, causing a communication between the bladder and rectum; but a more specific diagnosis was not ventured upon. Mr. H. washed out the bladder with a little tepid water, but this was followed by so smart a hæmorrhage that the operation was not repeated. The passage of fæces from the bladder continued for a considerable period, attended occasionally with a good deal of uneasiness; but, at other times, the urine became pretty clear. The patient experienced much relief from injections of tepid water into the rectum. Last summer he was attacked with apoplexy, the state of coma lasting several days; he recovered from this attack, but the fæculent discharge from the urethra continued. He next became affected with cough, and latterly with severe fits of dyspnœa. The pulse was feeble and very

irregular. Three days ago he had a second apoplectic attack, which soon proved fatal.

Autopsy.—Corresponding to the termination of the sigmoid flexure of the colon and commencement of the rectum, there was found a contraction, caused by the deposition, in the submucous cellular tissue, of a scirrhous substance, of a bluish grey colour, crossed by fibres at right angles to the bowel, about an inch or more in thickness at the seat of the stricture. The contraction was so great at one part, as with difficulty to admit the little finger. About a quarter of an inch above this, the mucous membrane formed a projection constituting a kind of valve, above which the fæces lodging, had caused ulceration of all the tissues of the bowel, and adhesion between the rectum and bladder: an abscess had formed, and had opened into the bladder at its posterior part. The opening between the intestine and the bladder was not direct, but by a sinuous passage, three inches long, and so narrow that, though the bladder contained much fæces, it was not without difficulty that the opening into it was discovered. The valvular nature of the communication explained the fact that no urine was observed to pass by the rectum; as the effect of the distension of the bladder would be, as in the case of the ureters, to close the opening, and prevent the passage of fluid through it. The mucous membrane of the bladder was very little redder than natural. Near the opening from the intestine was another, leading for a short distance between the two cavities. One very remarkable feature in the case was, that during the whole period, from June to March, the patient never had a symptom of obstruction of the rectum,—a circumstance which Mr. H. thought might be referred to the fact of the bladder having acted, to a certain extent, as an evacuant of the contents of the bowel.

There was some hydrothorax; the lungs were slightly emphysematous and congested; and the left ventricle of the heart was hypertrophied and dilated: there was no valvular disease.—*February* 28, 1846.

10. *Scirrhus of the Pancreas, and chronic Ulcer of the Stomach.*—Dr. Lees presented to the Society a specimen taken from a man aged 65, who died at the Meath Hospital during the past week. He was admitted into the hospital labouring under jaundice, and appeared in an almost moribund condition, so much so, that Dr. Lees was requested by his friends to see him as soon as possible. His skin was of a yellowish-green hue; he complained of pain in the right hypochondriac and epigastric regions, where a tumour, or rather a general enlargement, was observed, slightly tender to the touch, and extending as low as the umbilicus; vomiting and hiccough were present, and the bowels were constipated: there was no ascites nor pain in the shoulder. The history of the case was altogether rather obscure. He stated that he had not been addicted to drinking, but had been subject for the last twelve months to dyspepsia, and only for the last three weeks felt pain, since which time he had become jaundiced.

From the peculiar dirty green colour of the jaundice, the great emaciation, the age and general appearance of the patient, it struck Dr. Lees that malignant disease existed, and that the liver was the seat of it; but, on further examination, doubt arose on this point, as the symptoms might be accounted for by a chronic duodenitis, with enlargement of the liver. This man died very soon after his admission into the hospital.

Autopsy.—On opening the abdomen, the gall-bladder was seen enormously distended, so much so as to extend in front into the right lumbar region in front of the kidney.

The liver was greatly increased in size, and contained one scirrhous tubercle. The head of the pancreas was greatly enlarged, and converted into a scirrhous structure; it was intimately united to the concavity of the duodenum, the mucous membrane of which was here destroyed. The common duct was dilated to an immense size. During the ten days that the patient lived in the hospital, no appearance of salivation manifested itself: this was a point he considered worthy of observation, inasmuch as the occurrence of profuse salivation had been laid down as characteristic of disease of the pancreas.

Another lesion, Dr. Lees remarked, yet remained to be noticed, viz., a chronic ulcer of the stomach, in the usual situation, at the lesser curvature; it was a deep, excavated ulcer, and in the immediate neighbourhood were one or two superficial ulcers in an early stage.—*February* 28, 1846.

11. *Ulceration of the Stomach and Duodenum after a recent Scald.*—Dr. Hutton detailed the following case, and exhibited the recent specimens. A child, four years of age, was admitted into the Richmond Hospital, on the 25th November, 1846, having, two days previously, been scalded by boiling water over the face, neck, chest, and arms. When admitted, she had rigors and a rapid, feeble pulse; there was also a degree of stupor present. These symptoms soon passed off, under appropriate treatment; on the 27th, a mild aperient having been given, the alvine discharges were found to resemble tar in colour and consistence: there was subsequently a slight diarrhœa, which was easily controlled. She now appeared to improve, was regaining her appetite and spirits, and the blistered portions of integument became covered with new cuticle; but, in some places, the skin was ulcerated, and the ulcers did not present a healthy aspect. On the 6th of December, however, she began to vomit everything she took, and passed blood from the bowels. This discharge continued to recur from time to time during the following day, and she died upon the 8th, fifteen days after the occurrence of the accident.

Post Mortem Examination.—In making the dissection, particular attention was directed to the duodenum, this portion of the intestinal tube having been found by Mr. Curling to be frequently the seat of ulceration, in fatal cases of burns and scalds. The stomach and duodenum having been laid open, several small ulcers were

found in the upper portion of the latter; one was situated at the entrance of the biliary duct; the surrounding mucous membrane was very vascular; the remainder of the duodenum was free from any morbid appearance, as was also the rest of the intestinal canal. At the lesser curvature of the stomach, near the œsophageal opening, there was a very large ulcer, similar in its characters to those of the duodenum, viz., having deep, rounded edges and a flat surface. The stomach, near its lesser curvature, was adherent to the diaphragm. Dr. Hutton looked carefully for the source of the hæmorrhage that occurred in this case, but was unable to find any trace of ruptured vessels; neither the stomach nor intestines contained any blood; and, though the ulcers of the stomach lay close to the coronary artery, there was no appearance of its having been opened.—*December* 12, 1846.

12. *Congenital inguinal Hernia, strangulated and sphacelated; the Testicle and strangulated Intestine occupying the inguinal Canal.*—Dr. Mac Donnell presented a preparation of a strangulated and sphacelated congenital hernia. The strangulation had occurred on a Saturday, and the patient, a man aged about 25, was admitted into the Richmond Hospital on the Tuesday following. There was by this time no possibility of reducing the hernia, but by the operation, which, on consultation, it was decided should be performed immediately. The hernial tumour was on the left side, along the line of Poupart's ligament, and measuring about four inches by two and a half; it was of a dingy reddish-brown colour, and at one point was slightly œdematous. The integuments were not moveable over the tumour, a condition which contra-indicates the employment of the taxis. Before describing the operation, Dr. Mac Donnell observed, that the account given by authors of the symptoms occurring in cases of this kind were not of much practical value; for instance, we are told that a sudden decrease of the distress immediately ensues on the occurrence of sphacelus, and that it is accompanied by sinking, the "facies hippocratica," &c.; but in three cases of sphacelated hernia seen by Dr. Mac Donnell none of these occurred, and in all of them there was immobility of the integuments over the tumour, and an evident thickening and induration of all the parts covering the protruded intestine. As a result of this state of the parts in the present case, when the first incision was made, no retraction of the divided integuments succeeded, only a linear cut resulting; and as the incision was carried deeper according as the operation proceeded, it was observed that all the tissues were confounded with each other, and that they became darker and darker in colour as the hernial sac was approached. The hernia, which was one by oblique descent, was lying in the inguinal canal, but the tendon of the external oblique muscle was not discernible, and even the muscular fibres were so dark-coloured, and so confounded with the contiguous parts, that they could not be distinguished. Within the hernial sac was the intestine, very much distended, and below and to the outer side of it was the testis, perfectly healthy in appearance.

An exceedingly fœtid discharge had proceeded from the sac when the opening into it was made, an indication of the sphacelated condition of the intestine, which, when exposed to view, was observed to be mottled, yellow, and greenish, but its serous surface still smooth. The stricture which was at the internal ring, was very tight, so much so that it was difficult to insinuate the edge of the nail between it and the intestine ; a director could not be introduced : it was, however, very cautiously divided, and the parts left *in situ*. In the evening of the same day the intestine was opened ; nothing was evacuated but the contents of the protruded portion itself, showing that as yet the communication was not restored with the rest of the canal. During two subsequent days the patient appeared to be getting worse. Dr. Mac Donnell made more than one attempt to discover which was the upper extremity of the strangulated intestine, by introducing a gum elastic catheter into it, but these attempts were unsuccessful. Dr. Mac Donnell approves, in such cases, of meddling as little as possible with the parts, leaving it to nature to establish, by the sloughing of the parts at the stricture, the communication between the intestine and the wound, rather than incur the risk of what actually happened in this case, viz., the effusion of fæculent matter into the cavity of the peritonæum. After two days more he again divided the stricture, and he thinks this second division was made exactly at the same point as the first ; the upper extremity of the hernia was found to be slightly torn from its adhesion at the ring, and some fæculent matter had escaped into the abdomen. The patient sank rapidly. When the body was examined, the intestines from the pylorus down to the stricture, were observed to be enormously distended; below the stricture, with the exception of the portion in the sac, they were small and free from inflammation.—*January* 16, 1847.

13. *Artificial Anus.*—Dr. Mayne said that the case which he was about to lay before the Society had occurred under the care of his colleague, Dr. Shannon, Surgeon of the South Union Hospital, to whom he was indebted for the opportunity of communicating it. The subject, a man aged 70, was admitted into the hospital of the institution three months ago, he stated that his health had been good up to that time, and he denied having ever suffered from any symptoms of hernia. A short time before his admission he was seized with a severe rigor, which was speedily followed by an inflammatory swelling of the abdominal parietes of the left side, occupying the inguinal and lumbar regions, from Poupart's ligament up to the margin of the thorax ; it resembled phlegmonoid erysipelas, communicating to the finger an œdematous feel, being of a dark red colour, and accompanied by severe constitutional symptoms; there was fever of a low type, with a tendency to delirium, and muttering during sleep; the tongue was parched; the contents of the bowels were passed involuntarily, but the stomach was not irritable.

Dr. Shannon made free incisions through the integuments and

fascia, and thus gave exit to a quantity of thin pus, mixed with shreds of sloughy cellular membrane. The patient was at the same time put on large doses of ammonia and camphor, with a liberal allowance of wine. In a few days he had rallied considerably. The muttering delirium had ceased, he recovered the control over the sphincter, his tongue became moist and clean, and the appearance of the incisions was favourable. On the ninth day after the incisions had been made, and the fourteenth day of his illness, stercoraceous matter was observed in the discharge issuing from one of the wounds in the groin. The constitution did not seem to suffer in consequence of this new complication; fæcal matter in nearly the usual quantity passed daily *per anum*, the appetite continued good, and the man's strength improved gradually. For several weeks stercoraceous matter continued to appear in the discharge; all the incisions (except one) at length healed perfectly, but from this the fœcal matter issued, and to assist the cure pressure was cautiously applied. This treatment was successful; in eleven weeks the wounds had all closed, the only interruption experienced having been from occasional attacks of colic, which were relieved by laxatives, and a temporary removal of the pressure. The man subsequently contracted the prevailing dysentery, and sunk under it.

On examining the body, the usual anatomical characters of dysentery were observed. The parts concerned in the artificial anus were removed carefully, and were now before the Society. The artificial anus was perfectly healed; a depressed cicatrix alone marked its site on the abdominal integument. On viewing the preparation from behind, a portion of the small intestine was seen to have afforded the stercoraceous discharges, being firmly adherent to the abdominal wall. There had been an exceedingly small inguinal hernia, a part of the anterior wall only of the gut being engaged in the sac, so that there was very little obstruction in the canal of the intestine. There was no difference in the calibre of the intestine, measured above and below the artificial anus, nor was there here any angular change in its direction.

In this case, Dr. Mayne remarked, the total absence of constipation or irritability of stomach during the early periods of the case, and the late appearance of stercoraceous matter in the discharges, precluded the supposition that it was originally one of strangulated hernia ending in gangrene. The case afforded a good example of disease propagated from the parietes of the abdomen to the abdominal viscera, an exceedingly rare occurrence; and it also strikingly illustrates the difficulty of an accurate diagnosis under such circumstances. In fine, the success which followed the application of pressure for the cure of the artificial anus was explained by the trifling loss of substance which the intestine had suffered, and the small extent of angular displacement present.—*January* 3, 1847.

14. *Malignant Disease of the Duodenum; Jaundice.*—Mr. Hamilton said the specimen which he had then to present tended to illustrate the history and diagnosis of tumours within the abdomen. A woman,

aged 58, was admitted three weeks ago into the Richmond Hospital. She stated that she had enjoyed good health until five weeks previously, when she began to suffer from sickness of stomach and headach, and that soon afterwards she discovered a tumour in her abdomen, about the size of the closed hand. At the time of her admission she was emaciated, and had the aspect of one suffering from chronic disease, with the sallow, anxious countenance which is so usual in diseases of the malignant class. The tumour which she complained of was in the umbilical region, the umbilicus being over its centre. The mass, which was not prominent, was firm, nodulated, and exquisitely sensible. This extreme sensibility was reduced by the application of leeches, and by blistering; and when, by these means, the tumour admitted of being more minutely examined, it was found to extend deep into the abdomen, and to be well defined on the left side, but not on the right, where it gradually was lost in the direction of the ascending colon, and presented characters not unlike those arising from an accumulation of fæces. It was fully twice as large as an orange, and there was a strong pulsation in it, which, however, was not diastolic, and evidently arose from the impulse of the abdominal aorta; below it there was also a bruit de soufflet, but perceptible only when the stethoscope was pressed strongly on the tumour. The pain was most severe when the patient lay on the left side. The diagnosis was very uncertain; that a malignant disease existed was sufficiently obvious, but its precise seat could not be determined. Treatment was hopeless in a case like this, where the disease was so evidently of a malignant nature. The yellowness of the skin went on increasing until the patient became completely jaundiced, yet the dejections continued to be dark-coloured, though not melænic. Obstinate vomiting set in, which resisted all the means resorted to for checking it; nothing appeared to give any relief except black drop. At last delirium supervened, and in that state the patient died.

The examination of the body after death showed that the disease was chiefly in the duodenum, occupying the first part of its course, next the pylorus. In this situation the parietes of the intestines were thickened and indurated, and the tissues confounded in a homogeneous malignant structure. A little below this the same disease was observed in an earlier stage of its progress. The pancreas was but little affected; it was harder than natural, and its head lost in the diseased structure of the duodenum. The jaundice had been caused by obstruction of the ductus communis; its orifice was closed, and the duct itself completely flattened by the pressure of the diseased mass. The gall-bladder was enormously distended with dark green bile. Between the gall-bladder and the colon adhesions, evidently of recent formation, were found; and at a point corresponding to these adhesions the mucous membrane of the gall-bladder was slightly ulcerated. The liver was gorged with bile, of a very dark colour.—*January* 16, 1847.

OSSEOUS SYSTEM.

Case of Luxation of the Bones of the Spinal Column, occurring between the fifth and sixth cervical Vertebræ. In this Case also a Fracture of the Body of the sixth dorsal Vertebra, with much Displacement of the Bones, existed, and Laceration of the Spinal Marrow, causing sudden and complete Paralysis of the lower Extremities. The upper Extremities, at first slightly affected, afterwards became also paralysed, acute Ramolissement of the Medulla Spinalis having supervened on the Injury in the cervical Region. Death on the twelfth Day after the Accident. Post Mortem Phenomena.—Mr. Adams said he begged leave to lay before the Society a specimen of true and complete luxation of the articulatory processes of the fifth from the sixth cervical vertebra. When the whole of this case shall have been communicated, there will be found in its details other matters worthy of notice ; but as the possibility of a luxation of any of the vertebræ without fracture was questioned until lately, Mr. A. would wish to call the attention of the meeting this day particularly to the case of the true and complete luxation of the vertebræ, which the specimen he held in his hand sufficiently proves to have existed. Luxations of the vertebræ are so rare, that Sir A. Cooper and Boyer have not adduced any examples of luxation occurring in the region of the spine below the second vertebra. Mr. Lawrence and Baron Dupuytren have each adduced one case, showing that complete dislocation, both of the articular processes and of the bodies of the vertebræ, without fracture, may occur in the cervical region of the spine.

Mr. Samuel Cooper refers to three specimens of this accident, and Dr. Tchupke, of Vienna, to two. The specimen Mr. Adams then held in his hand was not, therefore, required by science to establish the fact of the possibility of a luxation occurring in the cervical region of the spine ; but as the patient lived for twelve days after having received the injuries of the vertebræ, and as the symptoms had been carefully observed, and noted also in the Hospital Case Book now before the Society, Mr. A. thought this fact might be considered well worth recording, particularly as the *post mortem* phenomena were accurately ascertained.

It will be seen that, besides the luxation of the cervical vertebræ, which induced ramollissement of the medulla spinalis in the important portion of it opposite to the luxated bones, there was also a transverse fracture of the body of the sixth dorsal vertebra, which was, at first, by much the severer lesion of the two. In the situation of the fracture, the bones had been so much displaced, that a *complete interruption and separation* of the medullary fibres had occurred. Although, as it has been just stated, this last was the severer lesion at the moment of the accident, still, to the *ultimate* consequences of the luxation must be referred the softening of the cervical portion of the spinal marrow, which caused the death of the patient.

Case.—Mary Anne Earle, aged 28, was admitted into the Rich-

mond Hospital on the 28th of August, 1838. She fell, or was thrown into an area, a depth of ten feet. The back part of her head came first to the ground, and her body seemed to have been doubled or violently flexed, giving her (as she reported) the sensation that her neck was driven into her chest. Having been lifted up, she observed that her body, below her neck, was nearly devoid of all feeling, and that she could not move her limbs. She stated that she perceived a *grating or cringing* at the lower part of her neck, as if some bone were broken, and that occasionally a numb tingling feeling (particularly on any motion of her neck) passed through her limbs. From the time of the accident till her admission into hospital at 2 o'clock, P. M., on the following day, she had passed no water, and on introducing the catheter about three pints of urine were drawn off. On examining the neck a depression was observed behind, at the lower part of this region; and, *on introducing the finger back through the mouth*, a projection *was felt in the pharynx;* "this projection seemed neither abrupt nor sharp ; but smooth, though bony." There was no difficulty in swallowing, but great pain along the cervical vertebræ. Her respiration was laborious, and performed entirely by the diaphragm and abdominal muscles. Her ribs were motionless ; her pulse 90, small and compressible ; her stomach very irritable, rejecting everything, so that she was afraid to drink, though very thirsty. In no position was her head easy for more than a few minutes. She frequently had it moved and supported on each side. Her thirst, and the irritability of her stomach, kept her from sleeping, although anodyne enemata were administered.

The following notes were taken on August 31st, four days after the accident:

She lay upon her back ; her abdomen was much distended and tympanitic ; her whole body below her neck devoid of feeling,—its temperature of a natural standard ; her lower extremities quite paralysed ; if raised, or left unsupported, falling down as if lifeless, and lying in whatever position they are placed. However, the upper extremities were not so completely powerless, as she could move the fore-arm a little, and support it for a moment or two; here also she felt an occasional numb tingling sensation. Her respiration was 22, and performed by the diaphragm; the pulse 80, regular. The use of the catheter was necessary, and the bowels remained unmoved, except by aperient enemata. She got no sleep, except a short doze; still teazed by thirst: there was frequently a convulsive working of the mouth. Her intellect was perfect; her manner calm, collected, and resigned, throughout the whole of the case. She had a weak kind of vomiting, or rather gulping up of the contents of the stomach. On each successive day she became gradually worse. The dejections were involuntary ; the vomiting ceased ; her respiration rose to 32; her pulse was 90 ; the upper extremities now became utterly powerless, as well as the lower limbs, which had been so from the first. She lived for one week longer, surviving till the twelfth day from the occurrence of the accident.

During the latter days the following phenomena were observed : The first and most remarkable were, a gradual increase of the pulse and respiration, which latter grew daily more and more difficult ; but there were paroxysms of dyspnœa subject to change,—intervals of comparative ease occurring, which were followed by others of increased suffering, when the breathing became very irregular and distressing : every change of position caused a hurry in respiration. On each day there was an increase of what might be called her ordinary respiration, when no paroxysm existed, and this amounted on the eleventh day to 40 or 50. The pulse was about 90, and soft. Her respiration was also impeded by the great tympanitic distension of the abdomen which existed : this was occasionally relieved by drawing off the flatus by a flexible gum-elastic tube. The introduction of the catheter to relieve the bladder was daily necessary; and on two occasions, while using it, the operator observed that there was a great quantity of mucus in the vagina. Towards the close, the urine became remarkably morbid, and was loaded with fetid mucus. The bladder became the source of great irritation and uneasiness to her, as her attention became directed towards it. Bed sores also formed, and a large patch of the integuments of the lower part of the back sloughed. Immediately preceding death, which took place at half-past 11 o'clock, A. M., September 9, she had a convulsion, in which her left arm was moved up and down: her visage was much distorted by involuntary workings ; she frothed at the mouth, which state lasted nearly an hour. Her manner throughout her illness was generally short and abrupt. She never entertained any hope of recovery since the accident.

Post Mortem Examination. Thorax.—The lungs were found much congested, and there was some effusion of serum into the cavity of the pleura.

The uterus contained a male fœtus about the third or fourth month. The bladder, which contained a small quantity of whitish fluid, having a heavy odour, was of very small dimensions. The rugæ of the lining membrane were red, mottled, and greatly inflamed, while the intervals between the rugæ were pale. At no point did any ulceration of the mucous membrane exist.

Spinal Column.—A luxation existed between the fifth and sixth cervical vertebræ, and an oblique fracture traversed the sixth dorsal vertebra from before backwards ; the upper portions projected forwards, but were kept to a certain degree *in situ* by the anterior and posterior common ligaments which, in both the luxated and fractured portions of the spinal column, were unbroken. In the cervical region a true dislocation had occurred without any fracture. The inferior oblique processes of the fifth cervical vertebra had advanced, while the superior oblique processes of the sixth cervical vertebra had gone backwards; so that their naked cartilaginous surfaces were exposed when the soft parts were removed from the cervical region posteriorly ; the body of the fifth cervical vertebra was one quarter of an inch in advance of the body of the sixth cervical vertebra : the

intervertebral substance had disappeared. The only ligaments ruptured were the capsular ligaments of the oblique processes and the ligamenta subflava. The anterior and posterior common ligaments of the spine remained unbroken, so that although a very decided luxation existed so far as the articulating processes and bodies of the vertebræ, the absolute displacement of the bones as to each other only consisted in a slight advance of the fifth vertebra on the sixth. The longi colli muscles in front were perfect, and these, as well as the posterior muscles, prevented the bones from further displacement than that just mentioned. The displacement of the vertebræ, where the fracture existed inferiorly through the body of the fifth dorsal vertebra, was much greater than the displacement of the bones in the cervical region, where the luxation existed. The anterior and posterior ligaments were unbroken : here, also, all the articular processes remained *in situ.*

Medulla Spinalis.—On opening the bony canal, some extravasated blood of a black colour was found at the seat superiorly of the luxation and inferiorly of the fracture. The spinal marrow and its theca were then removed, and the latter opened. The pia mater corresponding to the lower injury (the fracture) was found to be of a yellowish-brown colour ; and though *it* maintained its continuity at this place, there was a complete and perfect interruption of the substance of the medulla spinalis. Corresponding to the seat of the cervical lesion in the bones, that is, the luxation, the medulla spinalis externally exhibited but little alteration in its appearance from that which is normal, except that it had a slight tinge of yellow colour ; but when a longitudinal section of the medulla was made, it was found that ramollissement of this portion of the nervous system had occurred. The medulla was remarkably soft, almost diffluent, for the extent of three or four inches, presenting a mottled appearance, from the different shades of colour—yellow, red, and brown—which were observable on it.

On a former occasion Mr. Adams had shown to the Society the medulla spinalis when exhibiting other specimens of injuries of this portion of the nervous system, but at that time was not aware of the true lesion the bones had suffered. It was Mr. Robert W. Smith who discovered that in the cervical region a true luxation had occurred.—*March* 29, 1845. *Museum, Richmond Hospital.*

Compound Fracture of the Tibia extending into the Knee-Joint.—Dr. Hutton exhibited a specimen of injury of the tibia, implicating the knee-joint, taken from the body of a man, aged 50, who, while in a state of intoxication, had fallen off a cart, one of the wheels of which passed over his lower extremities. When he was brought into the Richmond Hospital he was found to have sustained a simple fracture of the lower third of the left femur, and a compound comminuted fracture of the upper extremity of the right tibia. There was a lacerated wound on the inner side of the leg, about three inches below the knee. A fluid resembling synovia flowed from it, and upon the day subsequent to the admission of the pa-

tient into the hospital the presence of air was detected in the knee-joint. The man appearing to have suffered very little from the shock of the accident, there being scarcely any constitutional disturbance, the remoteness of the wound from the knee-joint, and the condition of the opposite femur, were the circumstances which, at a consultation held upon the case, induced him to attempt to preserve the limb.

The swelling of the joint subsided at the end of three days ; the air was absorbed, and for a week after the occurrence of the accident, there was scarcely any fever present. Then, however, an erysipelatous blush appeared about the wound, and several abscesses formed amongst the muscles of the thigh; hectic fever set in, and the man died of diarrhœa one month after his admission into the hospital.

Autopsy.—The tibia was broken obliquely about three inches below its head, and from this fracture (which was comminuted) one fissure extended upward into the knee-joint, separating the outward condyle, and another downwards, vertically, to within three inches of the ankle-joint. The fibula was uninjured. The synovial membrane of the knee-joint did not present any evidence of inflammation. The cartilage of the patella was slightly softened.

"It was very doubtful," Dr. Hutton remarked, "whether in this case early amputation would have saved the life of the patient. The rule, in cases of compound fracture extending into the knee-joint, is certainly to amputate the limb at once. But it is founded on the anticipation of a probably fatal inflammation of the articulation setting in. In this instance, however, there was no inflammation of the joint."—*December* 13, 1845.

Caries of the Cervical Vertebræ.—Dr. Mayne exhibited a specimen of scrofulous caries of the superior cervical vertebræ. The patient who was the subject of it was a boy, aged 11, who first came under his observation in February last, labouring under enlargement and ulceration of the lymphatic glands, in the parotid region, and along the base of the jaw.

In the month of April he began to complain of stiffness in the neck ; he could not incline his head backwards without suffering considerable pain, nor could he bend it forwards without supporting his chin upon his hands. The slightest pressure applied to the vertex caused intolerable uneasiness, nor could he endure pressure upon the spinous processes of the superior cervical vertebræ.

Shortly after the appearance of these symptoms, he was attacked with severe pain in the head, together with slight numbness of the right upper extremity; and in the month of May his breathing during sleep became stertorous. Upon examining the throat, a tumour was discovered at the back of the pharynx; it was nearly as large as a hen's egg, had pushed forward the velum pendulum palati, and to the finger it felt tense and elastic. The boy experienced, however, no difficulty in swallowing, nor had he, except during sleep, any stertor or dyspnœa. The tumour was punctured with a

trocar, and exit given to a large quantity of matter, which, flowing down to the glottis, produced violent fits of coughing. By the evacuation of the contents of the tumour, the stertorous breathing was relieved completely ; that night the patient's rest was unbroken.

After the lapse of ten days, the sac of the abscess filled again, and the stertor returned. A second tumour now appeared at the back of the neck, over the transverse process of the cervical vertebræ. The pharyngeal tumour was again punctured, and the evacuation of its contents was followed by the subsidence of the external tumour. After an interval of about a fortnight, both tumours re-filled. An incision was now made into the external abscess, and as the matter flowed, the pharyngeal tumour became collapsed. This incision, degenerating into a fistula, served as a counter-opening, gave free exit to the matter from the internal abscess, and prevented the recurrence of the stertorous respiration.

When some further time had elapsed, the patient was attacked with an epileptic fit, which was succeeded by paralysis of the upper and lower extremities, retention of urine, and involuntary discharge of fæces. The sensibility of the limbs was not impaired, respiration was tranquil, and intelligence was perfect. The patient survived this attack for about a fortnight. Symptoms of disease of the bladder set in; bed sores formed wherever the soft parts were exposed to pressure; and he died suddenly while making an effort to move his head. It is worthy of notice that for some days before his death, he had recovered, in a slight degree, the command over the motions of the left lower extremity, and was able to pass urine without the aid of the catheter.

Autopsy.—A probe introduced into the external fistula was found to pass by a rather circuitous route into the pharyngeal abscess, and from the latter, a sinus conducted into the vertebral canal. The right condyle of the occipital bone, together with the corresponding portion of the atlas, was carious, and completely denuded of cartilage. The transverse and check ligaments were destroyed, as was likewise the apparatus ligamentosus colli. The brain was healthy, but the arachnoid membrane at its base exhibited some traces of inflammation, especially at the point of its reflection from the medulla oblongata, and the pia mater investing the almond lobules was highly vascular.

The immediate cause of death was the compression of the spinal cord by the odontoid process, consequent upon the displacement forwards of the atlas.—*December* 20, 1845.

Injury of the Elbow-Joint.—Mr. Robert W. Smith exhibited a preparation and cast of an injury of the elbow of a very unusual and rare description; it was taken from the body of a man aged 46, who died of pulmonary disease, and who had met with the injury of the elbow several years before his decease. The fore-arm formed a right angle with the arm; it could not be flexed any further, nor could it be extended; the hand was fixed in a state of pronation.

the power of supination was almost completely lost; no motion whatever could be imparted to the ulna; it was, in fact, obvious that it was anchylosed to the humerus; the head of the radius formed a striking prominence below and behind the natural situation of the capitulum of the humerus; the olecranon process, likewise, was placed behind and below the plane of the condyle of the humerus, but was by no means as prominent as in the ordinary case of luxation of both bones of the fore-arm backwards.

Upon the inner side of the joint three distinct osseous processes could be felt, placed upon the same vertical plane; two of them were constituted by the inner margins of the olecranon and coronoid processes; the third (which was superior) corresponded to the inner condyle of the humerus; at the outer side of the joint was also seen a remarkable projection, placed above the dislocated head of the radius, and reaching upwards about three inches along the outer margin of the arm. Where it ceased, a great irregularity could be felt in the shaft of the humerus, as if it had been the seat of an oblique fracture. From these characters it was conjectured that the injury had originally been a combination of fracture of the humerus, with luxation of the fore-arm at the elbow.

Upon examination *post mortem*, the following condition of parts was found. A fracture, commencing about four inches above the outer condyle of the humerus, traversed the bone obliquely downwards and inwards, terminating about an inch above the inner condyle; this fracture had united with considerable deformity and overlapping, the lower end of the upper fragment projecting forwards and inwards. The ulna was anchylosed at a right angle with the humerus, and somewhat displaced inwards; so that a line prolonged vertically downwards from the centre of the olecranon fossa of the humerus would pass completely external to the olecranon, the inner margin of which was exactly in the same vertical plane as the point of the inner condyle. The head of the radius lay in the situation which it occupies in what is termed luxation backwards. It lay below and towards the posterior part of the outer condyle, the inferior surface of which, enlarged and flattened, presented a very shallow socket for the displaced head of the radius. The capitulum of the humerus had altogether disappeared; a strong capsule surrounded the new radio-humeral articulation, and from its inner surface was detached a bundle of ligamentous fibres, resembling the round ligament of the hip-joint. This new ligament was fixed in the depression which the head of the radius presents, and which was here much deeper than natural. The specimen then was an example of oblique fracture of the lower end of the humerus, with displacement of both bones of the fore-arm, inwards and slightly backwards; but, Mr. Smith remarked, it was involved in some obscurity, in consequence of the anchylosis of the ulna to the humerus; for anchylosis was not a usual result of accidental luxations that have been left unreduced. In such cases the efforts of nature are rather directed towards the formation of a new articulation; so that, in the

absence of any of the commemorative circumstances of this case, the question naturally suggested itself, were the lesions of the humerus and of the elbow-joint, that had been described, the results of the same accident, or should the abnormal state of the elbow rather be considered as the result of chronic disease of the joint, occurring totally independent of, and at a period different from that at which the fracture of the humerus took place? Mr. Smith remarked that it would now be extremely difficult to arrive at a correct conclusion upon the question, but he was inclined to maintain the opinion, that the two lesions were coeval. With respect to the anchylosis between the ulna and the humerus, it may have been the result of a wound of the synovial sac of the articulation (by the pointed extremity of the upper fragment), whereby were induced synovitis and ulceration of the cartilages: this, however, was merely a conjecture. Such an occurrence is sometimes met with when the synovial sac of the knee-joint has been penetrated, in cases of fracture either of the femur or of the tibia. Mr. Smith, in concluding, alluded to a case described at page 465 of the edition of Sir A. Cooper's work edited by Mr. Bransby Cooper, of an injury of the elbow-joint, analogous to that which he had just described.—*January* 3, 1846.

Fracture of the Neck of the Femur.—Mr. Robert W. Smith exhibited a specimen of fracture of the neck of the femur, external to the capsule, and gave the following history of the case: Eliza M'Cabe, aged 80, was admitted into the Richmond Hospital December 13, 1845; she had just been violently thrown down in the street. The limb was shortened one inch and a quarter, and the foot was everted. During the night of the 17th she got out of bed, and made her way across the ward to the fire, beside which she remained, sitting upon the floor, until morning. Upon several subsequent occasions she left her bed, and hobbled about the ward, raving occasionally, and unconscious of pain. Opium failed to tranquillize her; in fact she manifested most of the symptoms of traumatic delirium. When the limb was examined after several of these attempts to walk, it was found that the shortening of the limb had reached two inches, and that there was a decided tendency to inversion of the foot. Two exceedingly sharp spiculæ of bone, belonging to the lower fragment, threatened to perforate the integuments close to Poupart's ligament, and a bony tumour could be felt towards the dorsum of the ilium. Upon the 8th of January, 1846, she was attacked with diarrhœa, and died upon the 30th, about six weeks after the occurrence of the accident.

Upon examination of the joint after death, the neck of the femur was found fractured external to the capsule; it had been driven into the cancellated tissue of the lower fragment, breaking off the entire of the trochanter major; the neck of the bone and the trochanter formed a right angle with the shaft; the former had suffered a very singular rotation, in consequence of which its anterior surface was directed upwards, and its posterior surface downwards; its conca-

vity looked forwards, and its upper surface backwards. The head of the bone was directed backwards, and the broken extremity of the cervix forwards; the trochanter was displaced along with the neck of the bone; the anterior surface of the lower fragment presented two sharp spiculæ, the points of which were only covered by skin; the anterior surface of the femur was turned inwards, and the lower fragment had been driven upwards in front of the superior.—*January* 31, 1846.

Fracture of the Spine in the Lumbar Region.—Mr. Hamilton exhibited a specimen of fracture of the second lumbar vertebra, taken from the body of a man, aged 25, who had been admitted into the Richmond Hospital early in December, 1845. The injury occurred upon the morning of his admission, and was caused by his having been crushed between an iron boiler and a beam of timber. He was assisting to roll the boiler up an inclined plane, when, a rope which was attached to it having broke, it rolled back upon him. He was brought to the hospital in a state of extreme prostration ; his pulse was indistinct, and his lower extremities cold, and paralysed. The second lumbar vertebra formed an angular projection, and the spine immediately below the seat of the injury was displaced towards the right side. He had retention of urine from the moment of the occurrence of the accident until the time of his death. The urine remained acid for the first week ; it then, after some pain in the bladder and a certain amount of irritability of the organ, became alkaline, and deposited a tenacious mucus, together with the ammoniaco-magnesian phosphates. On several occasions subsequently, however, it became for a short time clear and acid. Stillicidium was present. For a few days after the occurrence of the accident, sensation remained in the front of each thigh, but before long it was lost upon the left side. There was a diminution of animal heat in the paralysed limbs : when he was admitted, the temperature was 97° in the axilla, and 96° in the popliteal space; subsequently 96° in the former, and only 91° in the latter situation; and a short time before the patient's death, during an attack of erysipelas, the temperature was 102° in the axilla, and only 89½° in the ham. The pulse was about 74 throughout the whole progress of the case, except during the prostration which existed immediately after the receipt of the injury, when it was only 54, and shortly before his death, when, during an attack of erysipelas, it rose to 120. During his illness he had an attack of diarrhœa, which depended upon the presence of scybalæ in the colon. These being removed by means of injections, the diarrhœa ceased, but during its continuance the parts about the anus become excoriated.

About five weeks after the occurrence of the accident he experienced stinging and creeping sensations in the lower limbs. An issue was now established in the vicinity of the fracture, after which the sense of feeling gradually extended along the front of the right thigh, as far as the knee.

On the 2nd of February, after the occurrence of rigor and vomit-

ing, erysipelas appeared upon the back, and soon spread over the entire of the dorsal, gluteal, and femoral regions; it reached the legs and extended symmetrically over the chest, abdomen, and arms down to the wrists. He now began to sink rapidly ; his pulse became feeble, the urine deeper-coloured and mixed with blood; then delirium occurred, and he died on the 13th of February, about two months after the receipt of the injury. During the entire time he lay upon a water-bed. There was no sloughing until the supervention of the erysipelas, when the integuments perished over the right trochanter, on which he constantly lay.

Autopsy.—The second lumbar vertebra was found to have been fractured through its superior portion, close to the intervertebral substance. The fracture extended obliquely downwards through the lamina of the vertebral arch. The inferior fragment was slightly displaced towards the right side, where a small portion of the broken lamina had penetrated into the substance of the medulla spinalis, immediately above the cauda equina. There was an effusion of blood in the situation of the fracture, and the lacerated portion of the spinal marrow was reduced to a semifluid condition, with the exception of a small portion at the left side, which retained its normal consistence.

The bladder was thickened to a remarkable degree, and its mucous membrane, which was of a deep red colour, was here and there covered with depositions of a yellowish grey lymph. The kidneys contained some purulent matter. Mr. Hamilton was inclined to attribute the thickened state of the bladder to the high inflammation which had existed ; it could not be attributed to muscular action, the organ having been completely paralysed for two months. The pathological appearances in this case led Mr. Hamilton to believe that the hypertrophy so constantly found in the inflamed bladder in cases of stricture and enlarged prostrate, depended more on the extension of the inflammation from the mucous to the cellular coats than on true muscular enlargement.—*February* 14, 1846.

RESPIRATORY SYSTEM.

Phthisis in the Infant.—Dr. Mayne said that the specimens which he had to present to the Society were taken from a child of a year old, who had died of extensive tubercular disease. He considered them important, as being explanatory of the difficulty so frequently experienced in diagnosing pulmonary phthisis at that early period of life,—a difficulty which depends upon the very advanced stage at which the disease often arrives, before the physical signs are sufficient to justify the physician in giving a positive opinion.

The child was brought to him early in June, labouring under a cutaneous eruption, which soon yielded to mild alteratives. The child, however, did not seem to recover its health; it looked delicate; it was soon attacked with cough and diarrhœa, and the abdomen became swollen and tympanitic. These symptoms were at-

tended with insatiable thirst and rapid emaciation; the respiration and circulation also became permanently accelerated, and towards the close the stomach rejected almost every description of nourishment.

The constant cough and the incessant diarrhœa, with progressive emaciation, left but little room to doubt that the child's disease was phthisis; yet, although this opinion was formed as early as the beginning of August, no satisfactory physical signs were detected in the thorax until about the 25th of November. At that period a considerable portion of the back of the left lung was found dull, and the respiration over the same extent of the surface became bronchial. After some further time, the same stethoscopic signs appeared at the corresponding part of the right lung, but at no period of the complaint were any stethoscopic indications of tubercular softening ascertained to exist.

The child died towards the end of December, and when the body was examined, tubercles were found in both lungs and in the spleen, liver, kidneys, and mesentric glands. They were all in the crude state, and were nearly equally developed in all parts of both lungs.

The difficulties which attended the diagnosis in this case, Dr. Mayne remarked, were thus explained:—both lungs, from their apices to their bases, being equally the seat of tubercular deposit, all the advantages of *comparative* percussion and auscultation were lost, and as none of the tubercles had softened, the stethoscopic phenomena which depend upon this change were also absent.

The naturally loud respiratory murmur of the infant's lung presents another difficulty; for, in consequence of the great clearness of the *natural* murmur, solid deposits accumulate in the pulmonary tissue, without producing the physical signs of solidification, to an extent which would be impossible in after-life.—*January* 10, 1846.

Perforation of the Pulmonary Pleura.—Dr. M'Dowel exhibited the morbid parts in this case. The patient, a young man of about twenty years of age, came under medical observation in October, 1845, labouring under phthisis, which had supervened on secondary syphilis. There was evidence of the existence of softened tubercles in the upper part of the left lung, but the most careful examination failed to detect a cavity. He left the hospital in a few weeks, and early in the month of November was admitted into the hospital of the North Union Workhouse, under the care of Dr. Kirkpatrick.

The disease in this short interval had made rapid progress, for, when examined now, there were found to exist all the signs of a phthisical cavity beneath the left clavicle. For a month nothing material occurred, but on the 19th of December the patient complained of a stitch in his left side. The pain, it was important to note, had not come on suddenly, but, from being slight at first, had been for several days gradually becoming more intense; there was also short, dry cough, dyspnœa, and general febrile disturbance. These symptoms were soon followed by the signs of effusion, com-

bined with those of perforation of the lung. On examining the chest, the upper portion of the left side, in whatever position the patient assumed, sounded preternaturally clear on percussion, and the most depending portion completely dull. No respiratory murmur was audible over any portion of the left side; but over that part which, when struck, yielded a clear sound, metallic tinkling, and a splashing sound on succussion, were distinctly to be heard. Some of the signs of displacement were also present; the heart was to be felt pulsating to the right of the sternum, and the left hypochondrium was preternaturally full. In addition there were present great dyspnœa, profuse diarrhœa, decubitus on the left side, and cough: expectoration, which had been previously very abundant, had ceased. Medical treatment alleviated some of the most distressing symptoms, but on December 27 the dyspnœa became most urgent, and the pain in the side agonizing. On the 29th he was yet worse, unable to lie down, in extreme suffering, wasted by hectic, and so weak, that his discharges were passed involuntary; under these circumstances, and as a palliative, paracentesis was performed. The centre of the seventh intercostal space, on the left side, was selected; the integuments were divided with a lancet, and a small-sized trocar was then passed into the pleura. A gush of air first escaped through the canula, then there flowed away nearly two quarts of thin, inodorous, sero-purulent fluid, of a yellowish colour. It was observed that, during inspiration, the air rushed in through the canula into the pleural sac, and that during expiration the fluid flowed through the canula, from which it was obvious that the lung had no power of expansion, but still lay compressed against the spine, although the cause of its compression was removed.

The relief afforded by this simple operation was extremely gratifying; the patient bore it well, and one hour afterwards was found lying down and sleeping quietly, which he had not done for several days previously. The system, however, was too much exhausted to rally; the diarrhœa continued unchecked; he sunk gradually, and died four days after the operation.

Dr. M'Dowel presented to the Society a cast illustrating the morbid appearances seen on opening the thorax; and said that he was indebted to his friend, Dr. Kirkpatrick, for the opportunity of exhibiting the specimen which accompanied it. The cast showed great enlargement of the left pleural sac, which after death was found to contain inodorous air, and but very little fluid; the diaphragm pressed down, the heart still lying to the right of the sternum; the lung lay compressed at the back of the thorax; the pleuræ covering it, and the parietes were thickly coated with reticular lymph; the cone of the pleura was obliterated by adhesion; and below the line of adhesion, on the front of the lung, three inches below its apex, was seen a round fistulous opening, large enough to admit the top of the little finger, leading directly into a tubercular cavity. The whole of the left lung was full of tubercular deposits: a few scattered tubercles were found in the right lung.

Dr. M'Dowel observed that this case presented several lesions:

1st. A tubercular cavity.

2nd. Ulceration opening into the sac of the pleura.

3rd. Pleuritis, the result of extravasation into the pleural cavity of air and tuberculous matter.

4th. The effusion of serum, and subsequently of pus, from the inflamed membrane, constituting pneumothorax, with empyema.

He observed that no *marked* symptom denoted the exact period of the occurrence of the perforation of the lung; neither the sudden pain, urgent dyspnœa, nor the sensation of air passing out of the lung into the chest, which patients have so often complained of. Here, on the contrary, the pain came on gradually, and neither pain nor dyspnœa were very great, until there was such an amount of pleuritic effusion as to account for both.

Again he observed it was remarkable that in this case there was no dilatation of the side, or obliteration of the intercostal spaces; and that although this had been observed by others, in cases where, as here, the opening was direct, not valvular, yet he rather thought that, in the case before the Society, there had not been time sufficient for the development of this rather late symptom of pleural effusion,—the internal organs, from their affording less resistance, yielding to the distensile force sooner than the parietes. With respect to the operation of paracentesis performed in this case, Dr. M'Dowel said that there was nothing unusual in such a line of practice; the great dyspnœa and suffering produced by the air and fluid contained in the pleura frequently rendering such a proceeding imperative, to avert impending suffocation.

Dr. M'Dowel thought that the operation is most likely to be required soon after the occurrence of the perforation of the lung; for if the patient survived the immediate violent effects of this accident, the disease may assume a chronic character, in which surgical interference would be most injurious; for cases are recorded where patients, with all the physical signs of pneumothorax, have been able to engage for a time in even the most laborious occupations.

From a careful examination of the present case, Dr. M'Dowel thought he was justified in saying that the "point of election" for performing paracentesis, as laid down by most authorities, was not in general the most eligible. Here the centre of the seventh intercostal space was chosen, and yet the trocar must have passed within half an inch of the collapsed lung. In operating on the right side so high as through the fifth intercostal interval, Laennec was so unfortunate, in one case, as to wound the liver, and Watson mentions a case where, in operating at the "point of election" on the left side, the spleen was wounded. We are to conclude, of course, that the injured organs in these cases were unusually high up; yet a knowledge of the possibility of such an occurrence, Dr. M'Dowel thought, should induce surgeons to select a higher point than is generally recommended for performing paracentesis of the chest. Dr. M'Dowel also thought that in this respect nature would be more

closely imitated; for he said it had been observed that, in cases of "empyema of necessity," the tumour almost always pointed *high up*, and in several cases had been known to open spontaneously above the clavicle.—*January* 17, 1846.

Pleuritis simulating Pericarditis.—Dr. O'Ferrall exhibited the recent parts in a case of pleuritis, which was interesting from having simulated, during life, pericarditis. The young man who was the subject of this disease was aged 19; he had been six weeks ill before his admission into St. Vincent's Hospital, and had been for five weeks of that time in a fever hospital in Dublin. The symptoms he presented were, dyspnœa, anasarca, with considerable turgescence of the face, and blue congested lips; pulse 140, but regular. The case having been considered by more than one expert stethoscopist to be pericarditis with extensive effusion, Dr. O'Ferrall proceeded to examine it, with the expectation of finding that disease; and, certainly, nothing, at first view, could be more like it. The patient lay on his back, slightly inclining to the left side. On percussion, the cardiac dulness appeared to extend beyond its normal boundaries; the heart pulsated a little above its usual place; it could be felt close to the ribs, and its action heard distinctly there without murmur or friction sound.

The very superficial position of the heart, rendering its impulse so remarkably palpable, even while the patient was lying on his back, led him to doubt the existence of pericardial effusion. If the position had been different,—if the patient had been sitting up and leaning forward, the heart might gravitate through fluid into contact with the parietes,—but in that case a friction sound might be expected. The dorsal position, with evidence of contact, and absence of frottement, led Dr. O'Ferrall to the conclusion that no pericarditis existed.

The chest was then examined, the patient having assumed a sitting posture. The dulness was found to extend over the whole of the left side, posteriorly as well as anteriorly. Upon placing the hands on the sides, and desiring the patient to speak, no vibration could be felt on the diseased side, while it was plain on the other. The intercostal spaces were slightly protruded. The motions of inspiration and expiration were less marked on this side than on the right. The respiratory murmur was very faint and distant. It was evident that an extensive accumulation of liquid existed in the cavity of the left pleura. The absence of displacement of the heart might perhaps be owing to adhesions of older date.

The treatment consisted in cupping, blistering, and the exhibition of mercury, followed by tonics and diuretics. Under these means the anasarca gradually subsided, a friction sound became audible over the back of the chest, and the dyspnœa diminished. According as the respiratory murmur increased, it was observed to be mixed with a crepitating rattle. He remained in a state of partial recovery for four months; but it was observed that his pulse continued very frequent, varying between 130 and 140; his uri-

nary secretion, which had become copious, was now often defective in quantity; the dyspnœa began again to be troublesome. The mercury was exhibited a second time, but ineffectually. Anasarca again came on; the patient was attacked with hæmoptysis; and, finally, died somewhat suddenly.

At the autopsy, the left pleura was found to be obliterated by adhesions, those near the anterior margin of the lung being fibro-cartilaginous and evidently ancient. Nodules of pulmonary apoplexy were distributed through the left lung.

The pericardium, when cut open, was found to be smooth and polished on its internal surface, no trace of false membrane being present on any portion of its extent. The heart was enlarged, soft, and flabby, its cavities dilated and full of blood; the death had been by syncope: no valvular disease existed.

The morbid appearances were thus those of extensive pleuritis, pulmonary apoplexy, and enlarged, softened heart. But the question might arise, whether there might not have also existed a pericarditis, all traces of which disappeared under the treatment employed. But such a supposition was incompatible with the differences existing between the pericardium and pleura. If treatment had removed the effusion from the pericardium, why had it not prevented the organization of exuded fibrine in the pleura, and have also caused its absorption? If the extreme continued frequency of the pulse, without irregularity, and the violent action of the heart, be ascribed to a supposed pericarditis, let it be remembered that that lesion must have been cured, according to the hypothesis, four months before death, while the pulse remained as before.

Dr. O'Ferrall attributed the anomaly of the heart's not being displaced, to the existence of old adhesions at the anterior margin of the left lung; and he suggested that this might have been the cause of the cardiac distress which the patient suffered. Under ordinary circumstances, the heart, becoming displaced by the effusion, escapes, as it were, from the pressure; but when tied to the parietes, and compressed by a weight of liquid from behind, it becomes placed under conditions analogous to those of effusion into the pericardium, and is consequently liable to simulate that disease. The displacement which usually occurs may in this point of view be regarded as salutary, and the slight degree of inconvenience often endured by patients in this state seems to favour the conjecture.—*January* 29, 1846.

Encysted Tubercles in the Lungs.—Dr. Greene stated he had an opportunity of presenting to the Society a specimen of the encysted tubercle of Bayle; a morbid appearance so rare, that Laennec only saw four or five instances of it in a practice of twenty-four years, and Louis only mentions one case in his work on phthisis.

The female from whom the specimen was taken was admitted into the Whitworth Hospital on the 1st of January, labouring under cough, attended with a frothy and mucous expectoration, which was tenacious, and excreted with some difficulty. She had

inflammatory fever, with a quick and hard pulse, and urgent dyspnœa. On percussing the chest throughout, no amount of relative dulness could be detected; intense bronchial râles were everywhere audible, but no fine crepitus. On the supposition that the case was one of uncomplicated acute bronchitis, she was bled from the arm, and a solution of tartrate of antimony was administered. Under this treatment she improved so much that she requested to be discharged, and left the hospital on the 8th, to resume, as she stated, her family occupations. She returned, however, in a fortnight, but greatly altered in appearance. She stated she had caught a fresh cold, and that the cough had returned. The dyspnœa was now intense, and she lay on her back, incapable, apparently, of making any exertion; the cough was constant, and the expectoration was of the same character as before. On again percussing the chest no relative dulness was detected either behind or before; the bronchial râles were heard of the same intensity as when she first entered the hospital. The dyspnœa daily increased in severity, and she gradually sunk into a debilitated state, and died in a condition resembling asphyxia. The respiration throughout her illness was accelerated and abdominal; the expectoration, which was frequently examined, never contained any tubercular matter: the feebleness of her pulse, and the sunken and livid aspect of her countenance, prohibited the adoption of any active treatment. On examining the chest slight traces of interlobular pleurisy were found, such as weak adhesions between the lobes, and the deposition of a thin false membrane, more like the cellular tissue than the ordinary product of acute pleuritis, and such as is frequently found in old people attacked with influenza, and in subjects worn out by chronic disease of the chest. The bronchial mucous membrane was intensely injected, and the traces of vascularity increased towards the terminal branches of the tubes. The longitudinal fibres of these latter were greatly hypertrophied. This hypertrophy was, doubtless, due to the constant irritation of the bronchial tubes and attacks of intercurrent bronchitis, which are known to supervene whenever the bronchial tubes are in contact, for a length of time, with morbid products, such as tumours, aneurisms, &c. At the posterior portion of both lungs there was evidence of congestion and slight inflammation.

A number of rounded bodies, extremely hard and incompressible, were found in the lungs; some were small, others of considerable size, occupying both the upper and lower lobes. The morbid anatomy of these little bodies (several of which had been removed and sections made through them) was very peculiar; the cysts in which the morbid matter was contained were similar to cartilage, very hard and elastic. Two membranes were distinctly observed on examining the section, the outer cartilaginous or fibrous, and the inner mucous, which latter was smooth to the touch, but unequal on its surface, sometimes containing little depressions. These cysts, in fact, possessed the same structure as chronic phthisical cavities, but on a very minute scale.

It would appear that these bodies had existed in the lungs for a long time; first, from the frequent inflammatory attacks of the lungs, to which the woman was subject, principally of intercurrent bronchitis, for which she had been repeatedly cupped, as was evident from the numerous scars on her back; and secondly, from the age of the patient, who was near 60. It might be expected that the presence of so many solid bodies in the lung would be indicated by dulness on percussion, but it should be remembered that they were scattered uniformly through the organ, so that the relative clearness of one portion, in comparison with another, could not be observed. Thirdly, sound portions of the lung intervened between each of the cysts; and finally, some of the air-cells became distended in consequence of the repeated attacks of bronchitis.

It was difficult, therefore, to diagnose these cysts by unequivocal physical signs; but the frequent occurrence of bronchitis, without any obvious or assignable cause, should always induce us to suspect the proximity to the tubes of some source of irritation. In the present instance the repeated attacks of irritation arose from the efforts of nature to empty the contents of the cysts into the bronchial tubes, as was evident from the little funnel-shaped prolongations observed on the circumference of the cysts, and which appeared to be the remains of bronchial tubes.

The interior of the cysts was occupied by matter, partly tubercular and partly cretaceous, the latter being composed of phosphate and carbonate of lime. Dr. Greene concluded by remarking that an individual might reach a considerable age with these encysted tubercles in the lungs. The fibro-cartilaginous nature of the cyst isolated the tubercular deposit, so that, although such an individual might suffer from repeated attacks of bronchitis, he would yet escape the wasting hectic, which the coalescence of ordinary tubercle produces.—*January* 31, 1846.

MEDICAL MISCELLANY.

Case of Foreign Body in the Eye. By James Dixon, F. R. C. S. E., Surgeon to the London Ophthalmic Hospital.

The following case of expulsion of a foreign body, which had remained *eight years* in the anterior chamber of the eye, shows that the formation of a fibrinous cyst around such fragments of metal does not ensure the patient against the recurrence of inflammation, and enforces the propriety of immediately removing them whenever it can be done without serious injury to the organ(*a*).

(*a*) The late Mr. Walker observed that copper was "a substance incapable of solution within the eye."—*Oculist's Vade Mecum*, 1843, p. 325.

P. G., aged 35, a shoemaker, slenderly built, and of pale, unhealthy complexion, came to the London Ophthalmic Hospital January 10, 1848, complaining of intolerance of light, pain, and impaired vision, in the right eye. The cornea was clear; the sclerotic presented a vascular zone; the iris moved sluggishly when exposed to the light; the pupil was drawn a little downwards and inwards. On the lower and inner part of the iris, midway between its ciliary attachment and the edge of the pupil, lay a small, rounded mass, the size of a mustard-seed, which seemed to be a foreign body, thinly coated with fibrin. The patient could still see large letters, but within three days had been able to read small print, with this eye. He stated that eight years ago the eye was struck (he supposed with a shot) as he stood a few yards distant from a man who was shooting sparrows. Pain and redness of the eye came on, and he consulted a medical man, who gave him medicine which made his mouth sore. The sight was not much affected at this time, and it remained good and useful—almost as good as that of the other eye—for about three years. Inflammation then returned, and he applied a second time for medical aid; mercury was administered, and at the end of a fortnight he was so much better that he discontinued his attendance. No further inconvenience was felt until the beginning of the present year. On his first visit to the hospital he was leeched and purged, and then calomel was ordered night and morning, with opium. Within three days the foreign body was more than half denuded of its fibrinous covering, and proved to be a thin, flat scale, like a fragment of a percussion cap. A fresh deposit of fibrin soon took place, and until the end of June inflammation continued, with varying intensity, but the foreign body was never sufficiently free from fibrin to allow of its being extracted without a risk of injuring the lens, which remained perfectly healthy. During February fresh deposits of fibrin occasionally took place, and were absorbed again: by the middle of March the fibrinous effusion on the hinder face of the cornea was so extensive as to hide the lower half of the pupil, and fine red vessels were seen passing into this fibrin.

On the 10th of April a little white elevation, with a dark dot in the centre, appeared in the middle of the fibrinous patch on the cornea, as if the substance of the latter were softening, and about to give way. Three days later a fine black point protruded; it was readily seized, and a minute scale of metal extracted, which, on being tested, proved to be copper. No escape of aqueous humour followed its removal, as it had become completely enclosed by fibrin, which formed a barrier behind, at the same time that absorption of the cornea was going on in front.

June 5. A dense opacity hides the inner half of the pupil, and, except a slight adhesion of the iris, is the only morbid result of the injury. The iris is active, the lens perfectly transparent, and vision good.

Stone in the Bladder; Lithotrity; Failure of Operation; Refusal of Patient to submit to Lithotomy; Death. Cyst communicating with the Bladder; Diseased Kidneys, &c. By S. Hunter, M. D., F. R. C. S. I., Belfast.

John Quigly, aged 32, was admitted into the Belfast Hospital on the 8th of August, 1842, with a portion of calculus lodged in the urethra, immediately in front of the scrotum, in which situation it had been for a fortnight. He complained of great frequency of passing water, and pain in the bladder, extending along the urinary canal. Urine alkaline, s. g. 1,010, slightly coagulable; deposits thick tenacious mucus in large quantity; pulse 86. He had been in London under the care of Dr. George Busk, who very kindly furnished me with the following history of his case:

"He was admitted into the Dreadnought Hospital-ship on the 4th of June last, affected with the usual symptoms of calculus in the bladder. He stated that he had followed the sea twelve years, and had previously lived in Belfast. He was a strong man, of healthy appearance, but had paralysis of one side of his face, which he attributed to exposure to the sun at Rio de Janeiro, and which exposure had induced severe headach. About four years ago he received a hurt in the loins, unattended, however, with bloody urine, and since which he had occasionally been affected with pain in the region of the kidneys. In December, 1841, he had on one occasion a stoppage of the flow of urine while passing it, which continued for about five minutes, but was not attended with pain after micturition at that time. Before this occasion he had never had any sensible affection of the urinary organs, and had never, to his knowledge, passed any gravel.

"When admitted he complained of the usual train of symptoms attending calculus, and passed water three or four times every night: the urine was clear, of natural colour, with a light, mucous sediment, and reddened litmus paper. A calculus was immediately detected with the sound, and was not at first deemed to be of large size, and I resolved upon employing lithotrity, to which the case seemed in all respects well adapted. This operation was performed without any difficulty, and with scarcely any pain, two days after admission, and it was then found that the calculus was of a larger size than was at first anticipated, and was apparently of a soft nature. Many small fragments of stone subsequently came away, and the operation was followed by but little irritation; he was, however, in consequence of some pain about the bladder, cupped on the sacrum, and in three days afterwards the lithotrity was repeated, and the stone seized twice, the first time with little effect, and on the second it was apparently broken in half. Numerous fragments followed this second attempt, which was also the cause of considerable inflammation of the bladder, and consequent constitutional irritation. A very large quantity of ropy, mucoid pus passed with the

urine, which became alkalescent. Nothing more was attempted in the way of operation till this state subsided, which it did, in a great measure, in two or three weeks, when lithotrity was again employed and the stone seized twice, and more fragments came away, —in all about three drachms from the three operations.

"The local and general irritation caused by this last operation was so great that I resolved upon relinquishing that mode of removing the calculus, and determined upon employing lithotomy when the man's health should be improved. I judged at the time that the kidneys had participated in the inflammatory action, as he had vomiting, and pain in the region of these glands. The man, however, would not consent to the operation of lithotomy, and preferred leaving the hospital, which he did on the 18th of July, in pretty good general health, though, of course, unrelieved in the principal complaint, and, in fact, suffering more than he had done on admission."

All attempts to extract the stone by the urethral forceps failed, and its removal was finally effected through an incision made over it, which was followed by feverish symptoms, and some infiltration of urine.

September 27th. Until this last week his pulse has never been below 100, generally 120; calls to urinate very frequent; has had irregular rigors followed by heat and perspiration; pulse to-day 90: irritability of bladder less since he began to take a mixture with benzoic acid and balsam copaiba.

29th. An effort was made to crush the stone this morning. It was distinctly felt on introducing the lithotrite, after injecting the bladder, but on trying to seize the calculus it slipped away, and although the instrument could be felt in contact with it at a certain point, every attempt to grasp it failed. Enema opiat. statim.

30th. Calls to pass water less frequent; *feels less pain, and is altogether more comfortable than he has been for many weeks previously.*

October 3rd. Had pain and tenderness on pressure over right kidney, for which he was leeched with relief; symptoms are now much the same as before. He resolutely refuses to allow the operation of lithotomy to be performed, and as there was good reason to suspect diseased kidneys, he was not urged to submit to it so strenuously as he would otherwise have been.

He died on the 21st of November.

Post Mortem Examination, eight Hours after Death.—Body emaciated; slight œdema of feet and ankles; head and chest not examined.

Abdomen.—Both kidneys were found enlarged, of a light yellowish colour, and mottled on the surface; when cut into they presented a good specimen of Bright's "granular kidney." The pelvis of each was coated over with soft and recently effused lymph, slightly adherent, the surface underneath which was extremely red and vascular; ureters a little dilated. The bladder contained two calculi, the largest about the size of a walnut, and the lining mem-

brane almost black from venous congestion. To its left side, and adherent to the rami of pubis and ischium, was a sac lined by mucous membrane, about as large as a pullet's egg, communicating with the bladder by a rounded opening, an inch in diameter, in the contracted state of that viscus; the other abdominal viscera healthy. The two calculi together weighed ten drachms all but ten grains.

In commenting on this case Dr. Busk remarks, that "The operation of lithotrity in this man was attended with very bad results, and in all probability, lithotomy would have cured him at little risk; and, secondly, that disease of the kidneys had been, in a great measure, excited by the operations; and, thirdly, that the presence of two calculi was owing to the retention of a fragment broken off by the lithotrite."

The only other point worthy of remark is, the great remission of the symptoms for twenty-four hours after the last attempt at lithotrity, owing, I imagine, to the stone having been forced into the cyst communicating with the bladder, which circumstance would also account for my inability to seize the calculus, and the return of the severe symptoms as soon as it again became displaced.

The calculus has been examined by Professor Aldridge, and found to consist of ammoniacal magnesian phosphate, with a small fibrinous nucleus.

Case of Imperforate Anus. By J. Purefoy, M. D., Cloughjordan.

A large female infant was born on the 6th June, 1847, without any trace whatever of an anus; the genital organs were perfectly developed, and the infant otherwise well made and healthy-looking. It gradually, however, became deeply jaundiced, and passed into a state of almost perfect coma, in a period of about thirty-six hours from its birth. At this time the midwife brought the child to me, that it might be relieved by an operation; which was effected by a broad-pointed lancet, an incision being made in the situation where the anus should exist. It was found necessary to carry the incision to nearly the depth of an inch, not at once, but gradually, at the same time carefully observing, during the violent straining efforts of the infant, the appearance of a tumour, or any degree of fulness at the bottom of the incision.

Immediately on the appearance of a tumour it was opened by a free incision, when a prodigious quantity of dark, fœtid meconium flowed out in a continuous stream. The unloading of the bowel was completed by the aid of tepid water lavements, and a small tallow candle used as a rectum bougie. The child recovered the operation perfectly, but I did not ascertain whether it had the power of subsequently retaining the fæces. At the lapse of about three months I learned, much to my disappointment, that the little patient had died, and I have reason to suppose that its recovery was not wished for by the parents, as they never consulted me as to its treatment while ill.

The following suggestions occurred to me in reflecting upon this interesting case.

First. That we should not operate for twenty-four or thirty-six hours after birth, in order that the meconium may collect in the lower part of the rectum; by this means the straining efforts of the child may produce a tumour, or fulness, in the site of the anus, showing where the incision may be made with most advantage.

Secondly. That the incision should be deepened slowly and progressively, watching for the tumour or fulness at the bottom of the incision, which should be opened whilst rendered tense by the straining efforts of the child.

Thirdly. That a tallow-candle should be used for some time, to prevent undue contraction of the anus; and that purgative medicine should be strictly forbidden.

Case of Tapping in Hydrocephalus. By Charles Armstrong, M. D., Cork.

Johannah Murphy, aged seven weeks, was observed by its parents, who were young and healthy, three days after birth, to have "a separation of the bones of the head," which increased rapidly, dilating the lateral and antero-posterior measurements of the head to an enormous extent. The fontanelles bulged out, and the head, from its great weight, required constant support. The expression was strange and unnatural, from the great disproportion between the upper part of the head and the face; the functions were natural, there were neither convulsions nor paralysis; pupils active, but the eyes constantly rolling; she sucked tolerably well, and seemed free from pain.

On the 16th of February, 1840, I tapped the lower part of the posterior fontanelle, and drew off fourteen ounces of a limpid, straw-coloured fluid, and though much remained, I withdrew the canula in consequence of collapse setting in, which continued till the bones were placed *in situ*, and steadily supported by a bandage. When this was accomplished the eyes ceased to roll, the countenance lost its peculiar expression, and the infant sucked the mother's breast with more decision than it had ever done before.

The condition of the head immediately after the operation was very striking, and gave the idea of a large wet bladder, with a number of loose bones freely moving about in it, the occipital falling loosely down on the back of the neck.

On the third day after operation the child was improved, and was described by its mother to have slept sounder than before, and to have sucked with a better appetite.

The head again increased, and on the 5th of the following month I drew off seventeen ounces of the same kind of fluid, the operation being followed by *considerable* collapse, which continued till the bones were placed *in situ* as before. In about a fortnight after, the infant died, having suffered neither convulsions nor paralysis to the last. It seems that gangrene of the integuments had succeeded, from

neglected pressure of the bandage, by re-accumulation of the fluid; for I was unable to watch the finale of the case, having been summoned to the Cork Assizes, on behalf of the Crown, a distance of ninety miles from my then residence, and was detained then for ten days at the Assizes.

My absence prevented the attention that was necessary under such circumstances, by reason of which sloughing of the integuments took place, that hastened the termination of a case that, perhaps, would never have ended favourably.

A Letter to the Editor on the present Appearances of the Hospitals of Paris. By Charles Kidd, M. D., Limerick.

Dear Sir,—If the storm which has lately burst over the Continent has been followed by but few of those many social advantages our imaginative neighbours would lead us to expect, it is not entirely without interest—a melancholy interest, indeed—in the numbers of wounded at present in the hospitals of Paris; and it is likely to be not without very eminent advantages to surgery, and the treatment of gun-shot wounds in particular. Under this impression, and having visited these hospitals lately, I have thought a word or two on the subject not out of place at present. I confined my attention to the chief hospitals, the Hotel Dieu and La Charitè; the other hospitals, prisons, &c., where the wounded had been huddled together, not being easily accessible to the public. I found by far the worst cases at St. Louis and La Charitè; here Velpeau, Malgaigne, and Jobert, seemed completely inundated with frightful cases: bullets through the shoulder-joint, through the lungs, stomach, and head; fractures of every imaginable variety; deep granulating wounds communicating with the cavities; mortifying extremities; ugly conical stumps after amputation performed the day of the fight; injuries of arteries; again, wounds where these vessels had escaped as if by miracle; injuries of the great cavities, &c.; in short, every variety of surgical accident that we can well imagine.

What strikes you at first entering the wards of the Hotel Dieu and St. Louis is the quietness of everything; the silence and propriety of the *elevès;* the anxiety of the medical man going round for the welfare of the patients, and the information of the pupils, by whom, I must say, I never witnessed greater kindness or attention shown to any class of patients. At the entrance to each ward the *Personnel* and *Reglemens* are posted up; the former containing the names of every one engaged in the ward, medical men, chaplain, matron, nurses, &c.; the rules also not less conspicuous. The pupils, however, are interdicted from stopping in the ward after the surgeon, from percussing the patients, or in any way interfering with them: matters of rather questionable utility as far as the pupils are concerned.

The hour of visiting the hospitals is eight o'clock, A. M. The *blessès de Juin* were lying every where that accommodation could

be had. Many of the cases were of the most frightfully bad character: fore-arms torn in pieces by balls; hands shattered, and legs literally smashed by cannon-shot; by far the greatest number, however, were balls through the chest and shoulders, and all parts of the body exposed above the level of the barricade. It was quite wonderful to see what nature was doing for an immense number of these; the *Vis Medicatrix* seemed, indeed, all-potent. It was curious, too, to witness the nice parts the surgeons had to play: a word of comfort to one; a smile with another; a little bit of evasion with a third; many of them having, it is known, had more to do in the work of the barricades than they were willing to confess. There was an appearance of conscious misgiving about many of these poor creatures that one pitied. Several of them were wretched ghastly beings that an *emeute* always throws to the surface; many to whom death would be a respite from their thousand sufferings. There were also the young fellows of the *garde mobile*, especially at the Hotel Dieu; some of them wounded very slightly, others badly. One should see these fierce young fellows under every aspect to understand them; thundering along a *pas de charge*, or rolling in the grass at Versailles, without care or anxiety of any kind, except perhaps for fighting, and without a wish beyond that of standing sentry with a long gun, nearly twice the length of themselves, at the door of the camp. These nearly all recovered. One young fellow, a *garde mobile*, shot, it was said, one after another, thirty-five insurgents; General Cavaignac, seeing his undaunted courage, took a star off his own breast and put it on his. He was brought to the hospital next day, poisoned!

The general appliances of the hospital were excellent. Oiled silk, lint, charpie, sponges, ices, wines, jellies, and soups in abundance. Much more stress is laid on the article of diet than in our own hospitals. Everything seemed well managed indeed.

Among the more distinguished persons wounded in the late affray many were taken to hospital. The Archbishop of Paris, who received a ball in the lumbar region, fracturing the vertebræ, was taken to the *Hospice des Quinze Vingts.* Damesme, one of Cavaignac's chief generals, on falling at a barricade near the College Henri IV., was taken to the hospital at Val de Grace, where he had his thigh amputated. At St. Louis one of the members of the Assemby, M. Dornès, was lying next to a *garde mobile;* next both were several of the insurgents, many officers of the line, &c. It is not to be wondered at, however,—these institutions are so admirably arranged, so well supported, and so cared for by the Government. A project has lately met with very general respect in the Chamber, of giving domiciliary medical attendance to all the poor of Paris, at the expense of the State.

The following is the official return of "killed and wounded" during these fearful days:—

Wounded, received from 23rd to 28th June.—Civilians, 806; soldiers, *garde mobiles*, and *gardes republiques*, 813: total, 1619.

Amount of Dead brought to Hospitals.—Civilians, 129; soldiers, *gardes mobiles*, and *gardes republiques*, 33: total, 162.

Total killed and wounded.—Civilians, 935; soldiers, *gardes mobiles*, and *gardes republiques*, 846: total, 1781.

One hundred and sixty-two dead corpses were brought to the doors of the hospitals to be recognised by their friends!—the Morgue, the usual place for such exhibitions, having been obliged to be closed up. Many of these dead bodies were mangled and shattered by cannon-shot, or torn by the cavalry horses. Of the wounded, fifty-three civilians and 104 *gardes mobiles* left again on having their wounds dressed, while 195 died within the first five days; leaving at the time of my attendance over 1400 cases, with some 300 or 400 in the temporary hospitals.

A feeling of sorrow seems to fill every one now in Paris for what has happened. Presents of lint and charpie are deposited at Notre Dame and other buildings, for the use of the sick. Even many of the ladies of the city offered their services, staying up at night with the wounded. A good deal has been said about poisoned balls, but, I believe, without any foundation. Many of those extracted were made of copper and zinc, and other unusual metals, but the wounds inflicted by them did not seem possessed of anything peculiar. The number of wounded in the hospitals at present far exceeds that of any other revolution. A somewhat singular suggestion has been mooted, that of M. Gannel, to embalm all those that fell during the four eventful days. It seems he has made an immense fortune by his process. He is to be seen every day at the Hotel Dieu, and has been worrying the Government about it. General Cavaignac has turned a deaf ear to the matter. In his great zeal, however, he offers to embalm republicans of every sort who may honour him with their confidence.

At La Charité, under Velpeau, and MM. Gerdy and Morel-Lavallec, were 115 wounded, which I took the trouble of classifying as follows:—Injuries of head, 8; thorax, 8; upper extremities, 34; abdomen, 13; lower extremities, 33; various minor injuries, 19.

Several amputations were performed. Other cases, though of a very grave character, were apparently doing very well under the ordinary treatment. In one case the ball went right through the popliteal space without injuring either nerves or vessels; in another, a man shot in the back of the head, the ball went out of the mouth: both were apparently doing well. In many instances the ball had gone through the shoulder-joint without any very manifest symptoms supervening. In another case a man was shot through the kidneys,—the ball making two openings,—actually broken in two on the bodies of the vertebræ. In another case, doing well, the entire foot was shattered by a cannon-shot. In another a very severe injury occurred in the tract of the femoral vessels, without, however, any hæmorrhage: the man seemed as if nothing had happened. The injuries of the lower extremities were, indeed, almost beyond belief. In one singular case of injury of the head the entire of the coverings of the

lower jaw had been swept away, leaving the cartilages of the larynx exposed; there seemed no unusual hæmorrhage. In a severe injury of the upper extremity, the ball traversed the upper part of the shoulder, wounding the spinal column, and producing a want of sensibility and motion; the poor man was alive simply because it had not gone one half-inch higher, and cut off the origin of the phrenic. Another poor creature had received a bayonet thrust shrough his eye; another had a ball through both legs. In fact, every variety of horrid injury was to be seen. Amongst the newest ideas on gun-shot wounds is perhaps that of Velpeau, at La Charité, who has originated a classification and treatment of such lesions on the principle that they are analogous to burns. Every one knows the six degrees of burns of Dupuytren, and the treatment each will require. Velpeau states that the same thing holds in gun-shot wounds. The reparative process is the same; the symptoms the same; the treatment not very different. The ancients, I need scarcely say, held this doctrine till demolished by Ambrose Paré. Velpeau tells his class that the ancients were right; they saw the thing as a fact; but others came and built up a set of theories on it, that ultimately hid it from our view. The work of reparation, in many instances, is certainly the same; perhaps the shock to the system also.

At Saint Louis Hospital, under Jobert and Malgaigne, I found the worst cases I had seen. Many of them are there yet, and some are very interesting subjects of study. This hospital is beautifully kept; several officers of the national guards and line were under treatment; and every facility is given to the pupils. Malgaigne in particular, an excellent surgeon, is wonderfully communicative. As at La Charité I classified the cases as follows:—Injuries of head, 25; thorax, 18; upper extremities, 100; abdomen and pelvis, 20; lower extremities, 142; minor injuries, 15.

Some of the wards are under the care of M. Gosselin, and contain exceedingly bad cases; one, an entire destruction of the thigh by a cannon-shot, with fracture of the femur; another, a frightful crushing of the hand; several injuries of the most desperate kind of the lower extremities; one, a ball in the track of the ascending colon and gall-bladder, without any very bad symptoms.

Under the care of Malgaigne I saw here two cases in particular of extensive injury of the shoulder-joint; mortification in one, removal of the extremity at the joint in another. There were crowds of instances of balls through and through limbs without any bad effects. In amputating I think the French surgeons do not clean the bone as we do in this country. The thing is done in an instant, but I am quite satisfied not so well as it might be. Whether on account of the hurry of the operation, or the change worked by chloroform, I do not know, but I had seen the most formidable operations also performed without removing the patient to the operating theatre. If the operation can be well done under such circumstances, perhaps it is an improvement, as so much of the strength of the patient as would be lost by the removal is husbanded. The process of " chlo-

roformizing" is not managed so well as I have seen it at home; the patient is merely let smell to the vapour for some time. Speaking of this powerful agent perhaps I may say it is at present, in some institutions in Paris, somewhat under a cloud, from the many deaths that have occurred from its use there and elsewhere. The chloroform bottle is, however, carried about the hospitals as regularly as the other *armamenta medicaminum.* In one ward of St. Louis, for instance, we came to a desperate case of injury of the leg; Malgaigne called for the chloroform bottle while visiting the beds next it; the poor man was prepared for his fate, put under the effects of the anæsthetic, and on the return of Malgaigne settled for amputation. An assistant compressed the artery. The knife was run through over the bone; a large flap down to the patella was formed in a second; a sea of thick, grumous, pus-like matter followed; the bone was at once sawed through without any effort to save more flesh, the flap being somewhat limited; a large vermiform clot was taken out of the vein; the chief artery tied, and the rest left to the assistants. Not a word was spoken all the time; Malgaigne seemed as collected and cool as if it were any ordinary case, and passed on to the other end of the ward. Scenes like this are of hourly occurrence, and during the first few days of the insurrection were even still more frequent. I am quite aware that there is nothing very remarkable about removing a limb now-a-days. I think, however, that any one anxious to see what the system will bear in that way, or the other fearful injuries it will still battle against without any obvious effect, will find a rich field for study among the hospitals and ambulances of Paris for the next two months. With few exceptions, every thing is left to the *vis medicatrix naturæ,*—the expectant system of the French, which, if not exactly the best, is, perhaps, superior to the opposite one so common elsewhere. Indeed any one anxious for a proper conclusion as to what may be left to nature and what not, cannot fail to find it in the Paris hospitals.

At the Hotel Dieu, in the ten days preceding the 2nd of July, 450 wounded were received. In the wards of Roux, of 127 wounded, 25 died almost immediately; 100 of these were cases of penetrating wounds of the abdomen, in one of which the liver must have been pierced; two cases in which the lungs were wounded; several other injuries of the chest and upper extremities; one very fearful case, in which the man was shot through the loins, the ball traversing the bodies of the lumbar vertebræ, producing retention of urine, paralysis of motion, and *not* of sensation, in the lower extremities: death after four days. 31 quitted the hospital cured, leaving at the time of my visit the following under the care of Roux:—Injuries of the head, 11; thorax, 1; upper extremities, 23; abdomen, 2; lower extremities, 28; total, 73.

Under the care of MM. Manec and Voillemier:—injuries of the head, 7; thorax, 5; upper extremities, 26; abdomen, 7; lower extremities, 29; minor injuries, 3: total, 77. 150 in all.

In the extraction of balls the French surgeons use a great deal

of discrimination, and believe that making counter-openings, and unnecessarily enlarging the original wound, ought not to be practised; that, like the abuse of the trephine, the means of cure may lead to worse effects than the first injury, and that we should *wait for symptoms.* Two very ingenious intruments have been invented for getting at balls; like all such nice things, however, they are seldom used. One termed the "*Alphonsin,*" differing little from the lithotrity instrument, we are all familiar with at this side of the channel; the other, a little more complex, and containing a sort of cork-screw addition for fixing the ball and drawing it away. From the circuitous direction of balls in general, it is quite obvious what little use such instruments can be.

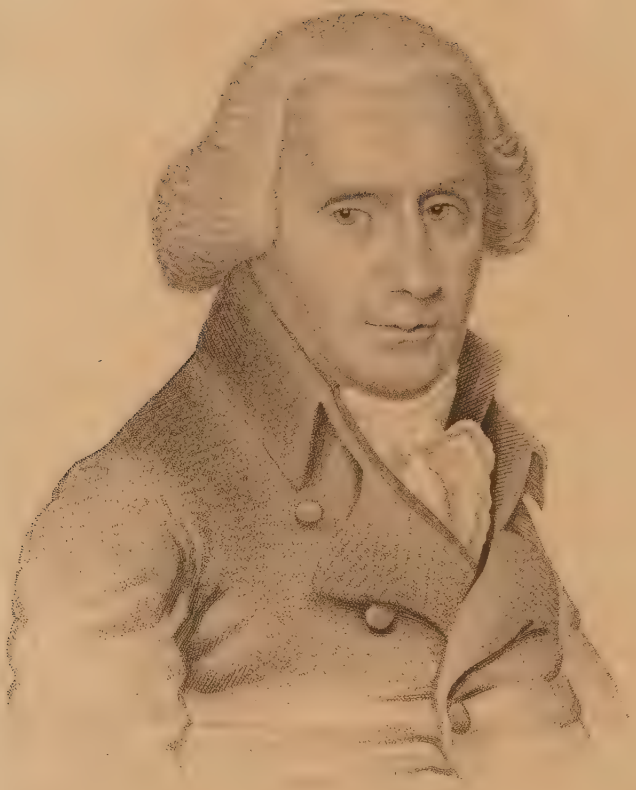
At the *Maison de Sante* 90 were admitted; of these, 8 were severe penetrating wounds of the chest,—many of them doing well after repeated bleedings. It was somewhat curious to witness the apparent want of symptoms in several patients here, though the most vital parts were evidently implicated. In one man the ball had gone through the spine of the scapula, fracturing that bone, and giving obscure evidences of its presence in the chest: after two bleedings he appeared recovering. In another case, though the ball had gone through and through the chest, injuring all the parts at the base of the lung, no bad symptoms had presented themseves. The worst appearances, however, may be a work of time; the immunity from pain or constitutional disturbance, so soon after the receipt of the injury, being a little fallacious. Much of it, however, I would be inclined to ascribe to the assiduous attention shown the patients, and the quickness with which any inflammatory agression is subdued by bleeding. A *garde mobile* suffered under a wound of the head for some days; the brain was quite perceptible; reduced to a reddish pulp, it seemed insensible; pulsating as usual. He did not complain of anything unusual either, but died four days after. At this little hospital, out of 90 admitted during the insurrection, amputations were performed eight times.

At one of the temporary hospitals I found 75 wounded, of the ordinary character of cases: there were only a few about which there was anything peculiar. One man received a ball at the external angle of the eye, which entered deeply into the face: there seemed no bad symptoms. I should say, however, the commissure of the optic nerve had been injured. *He was blind of both eyes.* Several instances of injuries of the chest presented themselves, where the ball had gone round nearly the entire thorax without entering: these patients were recovering. One, indeed, in which the ball had to all appearances entered the chest, had got severe inflammation of both lungs and pleura; much fear was entertained for his life. In one of the beds a poor fellow, surgeon of one of the regiments of the line, elicited much sympathy. In no way daunted by the crash of barricades, he remained with his regiment till struck by a ball, which shattered the lower end of the femur, going through the knee-joint. The poor fellow seemed quite collected, and great hopes were entertained for his recovery.

At Val de Grace, a military hospital under the care of M. Baudens, something over 100 patients, many of them very severely wounded, were received. The treatment seemed to differ little from that in the other hospitals; refrigerents, to keep down inflammatory action (ice, cold water, &c.), purgatives and bleeding, where necessary; and attention, the most assiduous, to changes as they occurred. Fomentations of various kinds, when suppuration set in, and other matters as the cases might require. M. Baudens does not seem a great advocate for amputation. He had operated, however, fifteen times after the days of June. 16 patients had sunk from the effects of their wounds. The remainder were progressing favourably. Of the number in this hospital I made the following classification:—Injuries of head, 12; thorax, 6; upper extremities, 35; abdomen, 8; lower extremities; 47, minor injuries, 15: total, 123. A somewhat singular case occurred here, that of a young soldier, in which the ball impinged on the eye, producing a contusion of the eye-lids and cornea merely, to all outward appearance with little constitutional symptoms, but in whom the shock to the eye caused complete blindness! Here, as everywhere else, one sees the different character of the cases, among the well-fed military and the but too often wretched *ouvriers*. Several of the latter were attacked with gangrene. The treatment in all the hospitals is, perhaps, a little too general; what is ordered for a stout *mobile* being likewise ordered for a starving insurgent. All these injuries not requiring amputation are treated by cold applications, and venesection if necessary, followed, after reaction, by emollient cataplasms. There is very little cutting or enlarging of wounds, and a great deal is left to Nature. The relative mortality will, perhaps, prove whether this or the opposite system is to be preferred. In two of the worst cases of wounds of the chest here, the operation for empyema had to be performed.

On the Use of the Solution of Caustic Potash in relieving Strangury.
By Robert Mulock, M. D., Dublin.

In three cases of strangury, caused by blistering with cantharides, I found the solution of caustic potash a perfect remedy. Two of the cases were head affections, where opium was inadmissible. Thirty drops, given in half a wine-glass of water every hour, gave relief before the third dose was exhibited. What led me to the use of this preparation was its known effects in relieving irritation of the bladder in other cases, and also its efficacy in relieving the stings of wasps or bees when applied to the skin. I considered that it might also relieve the acrid principle of the cantharides. Indeed from its effects, it would probably be a remedy for an overdose of that medicine, if given in proper time. In looking over the various works on irritative poisons, I find no antidote to the poison of cantharides, and mention this now that further trial may be made of its effects in giving relief.



Fid. Ô Halloran

ILLUSTRIOUS PHYSICIANS AND SURGEONS IN IRELAND.

No. VI.

SILVESTER O'HALLORAN, M.R.I.A.,

Surgeon to the Limerick Infirmary : Honorary Member of the Royal College of Surgeons in Ireland, &c. &c.(*a*)

With a Portrait.

In a recent volume entitled "Revelations of Ireland" the author asserts, that, "from a variety of causes, the bar in Ireland has enjoyed almost a monopoly of the talent of the country." True it is that the legal profession must, from the circumstances under which it is placed, ever enjoy a greater amount of public attention, for the time being, than any other. Political in its nature; and its members, unhappily but too frequently called upon to plead a country's in a client's cause; hourly brought before the public and their fellows in the court, the arena, or the senate; with the highest offices in the State open to them as the reward of talent, the price of fidelity, or the premium for political bias or partisanship,—we should naturally expect the advocate, the minister of justice, and the lawgiver, to rank highest among the professions, and the offices and rank to which the professions lead in this country. Without wishing in the slightest degree to detract from the transcendent talent for which the members of the Irish bar have been so long conspicuous, we must, however, claim for the medical profession at all times an equal share of ability with the members of the legal profession,—their brothers of the same race, kindred, and country;—and, for the last century and a half, a somewhat greater advance in general knowledge, a more extended professional and general literary reputation, and for the establishment of far more lasting monuments of charity, benevolence, and industry, as well as for equal progress in the advancement of truth, the revival of learning, and the propagation of nationality in this portion of the British

(*a*) We have been for some time past engaged in collecting materials for a biography of Silvester O'Halloran, but although several of his descendants had existed in Limerick up to a very recent date, we have not been able to gather much of his domestic history. Our esteemed friend, Dr. Charles Kidd, of Limerick, to whose talent and learning we beg to make this public acknowledgment, has, however, furnished us with a sketch of the life of his distinguished townsman, of which it will be seen we have largely availed ourselves in the following memoir. We also beg to express our acknowledgments to Captain Henry D. O'Halloran, of the 69th Regiment, the grandson of the subject of this memoir, who has likewise furnished us with such materials as were in his posssession, and also placed at our disposal a miniature from which the accompanying engraving has been made. To the Rev. Mr. Murphy, P. P. Limerick, we are also under obligation. The miniature was copied by Mr. Connolly, and engraved here by Mr. M'Dowell.—Ed.

dominions. O'Connell, Plunket, Curran, and Bushe, as well as Grattan and Flood, the country claims as orators, statesmen, and patriots, not mere lawyers. Examine into our domestic history of the last century, when eloquence frequently took the place of law, and personal invective silenced argument; when judges, it is said, were often won by jokes, juries biassed by harangues, and witnesses generally browbeat by abuse;—and where do we find the history of the Irish bar and its members;—where are their writings, professional, general, or national;—where the monuments of their benevolence;—what institutions did they create;—what libraries establish;—what great benefits have they conferred upon the country at large? Not so the medical profession;—though not political as a body, its members upheld our nationality, investigated and preserved our history and antiquities, fostered and enriched our literature, blessed the country with noble and largely endowed hospitals, and benefited their own profession by the institutions which they created. Such men were Sterne, Molyneux, Mullen, Dun, Robinson, and Rogers, as well as Maurice O'Connell, O'Halloran, Charles Smith, Steevens, Mosse, Rutty, M'Bride, Brown, and many others whom we might enumerate, whose works have come down to us, and whose institutions still benefit our country and adorn our city.

We may with pride point to the labours of the medical profession for the last thirty years; for after the frightful collapse which ensued in this country, and particularly in the metropolis, during the first few years of the present century, the young school of medicine in Dublin first began to show signs of vitality, and sprung to its present gigantic growth in an almost incredible space of time; and the echo of its fame, the reputation and the writings of its authors and teachers, was soon carried abroad, and valued and honoured wherever medicine was acknowledged as a science.

Foremost amongst those members of the medical profession and men of science and letters who have upheld the character of the general and professional literature of this country during the middle and latter part of the last century, stands the individual with whose portrait and memoir we now present our readers. Descended through a long line of Irish ancestry, whose forefathers ruled for centuries in the land,—and counting among them the bard, the poet, the annalist, the priest, and the warrior, as well as the hereditary physician,—the name of O'Halloran has claims upon the respect and veneration of those amongst us who still love the soil, and are acquainted with the early history of their country. There are few Irish families of antiquity and note whose genealogy cannot be accurately traced for several centuries, and the history of that now under consideration can be followed up to a very early period indeed. In the "Alphabetical List of Ancient Irish Territories, and by what Families possessed, both before and after the English Invasion," left us in his History of Ireland by O'Halloran, we learn that the territory of the O'Hallorans of the Hy-Brune race was Clan-Feargal, which "comprehended twenty-four townlands situate in that portion of the

east part of Lough Corrib on which the town of Galway now stands. Aileran, surnamed An-Teagna or the Wise, regent of the university of Clonard, in the seventh century, and one of St. Patrick's biographers; and St. Finbara, first bishop and founder of the Cathedral of Cork, were of this sept; as also William Halloran, better known by the name of William Ocham or Ogham (on account of his profound knowledge in the ancient hieroglyphic character of the Irish). He was styled Prince of the Nominals; taught in the University of Oxford in the beginning of the fourteenth century, and was the great opponent of the celebrated Scotus in that University"(*a*). As may

(*a*) See O'Halloran's General History of Ireland, 4to. edition, vol. ii. p. 388–9. From the house of Clan Feargal, of the tract Debrin Feardha, near Galway, the subject of this memoir was descended. The O'Connies were possessed of a portion of this tract till expelled by the O'Flahertys and O'Hallorans, descendants of Brien, eldest son of Eochaidh, monarch of Ireland. There was another family of the name of O'Halloran, whose territory, called Faith-in-Halluran, extended from Tulla to near Clare, in Thomond; but it would appear that Silvester O'Halloran sprung from the Galway family.

Sir James Ware says that Clan-Feargal, an ancient territory comprehending twenty-four townlands seated on the east side of Lough Corrib, on part of which the town of Galway now stands, was the ancient seat of the O'Hallorans.—Eccles. Hist. vol. ii. c. vii. p. 47. Mr. Hardiman, in his History of Galway, gives the following notice of some of the possessions of this family. Clanfergh, or Clan-Feargal, lay on the coast side of Lough Orbisen or Corrib. It consisted of twenty-four villages, in which Galway, Clare, and Roscam are now situate, and was the lordship or dominion of the O'Hallorans until after the arrival of Henry II.—p. 3, note [h]. "Four miles west of Galway, near Barna, are the remains of an old castle which formerly belonged to the O'Hallorans. The Lynch family acquired this ancient inheritance by marriage with an heiress of that old Irish sept."—p. 18, note [x]. The estate of Pulnoromly, about a mile west of Galway, in possession of the Skerrett family, was acquired by purchase from one of the ancient Irish sept of the O'Hallorans, who were original proprietors of the entire district.

In Mr. Hardiman's notes and illustrations to Roderick O'Flaherty's Chorographical description of West or H-Iar Connaught, lately published by the Archæological Society, we find much valuable information respecting the O'Hallorans; see pp. 54, 59, 253 to 260, 393, &c.; all which prove that the Clan O'Halloran were originally located in the vicinity of Galway, and were intimately connected with the O'Flahertys. In a fragment of an Irish manuscript in the library of Trinity College, (H. 2, 17.), reference is made to the Clan Feargail. See also the Book of Ballymote, fol. 54. Mac Firbis, in his Irish Genealogy, gives the pedigree of the O'Halloran family for twenty-five generations,—from Eochy Moyvane, A. D. 358, to Dervock (David Oge). The ruins of the old castle of Barna in the vicinity of Galway, and the remains of a round tower at Roscam, still exist. "In the thirteenth century the O'Hallorans were dispossessed of their ancient inheritance of Clan Feargail, by the De Burgos, and were obliged to emigrate with the O'Flahertys to Iar-Connaught, where they built the castle of O'Hery, in Gnamore, and also, according to tradition, the castle of Rinvile, in Northern Connamara."—See the Archæological edition of H-Iar Connaught, p. 254; also the Ogygia, p. 376; *Cathreim Thoirdhealbhaigh*, or the Chronicles of the Wars of Thomond, A.D. 1309; O'Brien's Irish Dictionary, p. 514; and also the "Description of Connaught," preserved in the British Museum, p. 252. Mr. Hardiman possesses, and has published in the Archæological work already referred to, several interesting documents relating to the O'Hallorans: chiefly deeds

be seen by the accompanying notes, the family of O'Halloran had greatly degenerated, and lost all its ancient patrimony, about the beginning of the last century, when we find the last of the line located in Limerick, and intermarried into the Mac Donnell family; and from this union sprung two of the most accomplished gentlemen and best scholars which this country produced for many years before or after. Joseph Ignatius O'Halloran, D. D., born in 1720, and educated in the city of Limerick, entered the Jesuits' College at Bourdeaux, in 1736, and was intended for the study of physic. "His early genius," says Mr. Ferrar(*a*), "his diligence and his abilities, soon drew the attention of these fathers, and they judged him an acquisition of too much consequence to their body to omit any inducement to his embracing the monastic life. After sustaining his course of philosophy with singular reputation, with the consent of his parents, he entered his noviciate in the order. He passed through all the degrees with an eclat that did honour to the discernment of this society. When appointed professor of philosophy he was the first that had courage and abilities to open the eyes of the University of Bourdeaux with respect to the futility of the principles of Monsieur Des Cartes, and proved to demonstration the unerring principles of Sir Isaac Newton, adding all that could be collected from his own and from the experiments of the most attentive observers of nature in its support." "After teaching philosophy with distinction for several years, he was appointed to the chair of divinity, in which he made no inconsiderable figure, until, compelled by the revolutions of the society, he returned to his native country, where he has distinguished himself as well by his zeal in instructing the ignorant as by his talent in the pulpit." Of his works some sermons and religious tracts, as well as a few fugitive pieces, are said to have been published while he was professor of rhetoric at Bourdeaux.

Silvester the second son, the subject of this memoir, was born in the North Liberties of the city of Limerick upon the 31st of December, 1728. Of his boyhood and college career we possess but scanty information, except that at a very early age he studied physic, surgery, and midwifery, in the schools of London, Paris, and Leyden, at that period the great marts of medical knowledge. It must be remembered that at this time the College of Surgeons in Ireland had not been created, and that our School of Physic possessed but little reputation; indeed, up to the beginning of the present century, we know of no professional man of eminence in Dublin—Molyneux, Daunt, the elder Dease, Morris, Cleghorn, Purcell, and Harvey, for

bearing date from 1594 to 1718. "In 1585, The O'Halloran was one of the contracting parties in the Indenture of Composition for Iar-Connaught with Queen Elizabeth." See also the references to this family in Keating's History of Ireland. In the neighbourhood of Galway, and in the adjoining islands, the name is still preserved.

(*a*) The History of Limerick, Ecclesiastical, Civil, and Military, from the earliest Records to the Year 1787, &c. Limerick, A. Watson, and Co., 1787, p. 370. See also Fitzgerald's History of Limerick.

instance—who had not studied for a considerable time in the Continental schools.

The barber-surgeons were joined with the apothecaries as the Guild of St. Mary Magdalene, under the charter of James II., in 1687(*a*). At the same time it is quite apparent, from collateral evidence, that there was a separate grade of practitioners in Ireland who served apprenticeships to surgeons duly qualified and only practising as such, and who were, on the expiration of their apprenticeships, examined and licensed to practise surgery, and, perhaps, midwifery, by the Surgeon-General of Ireland for the time being(*b*). By the Infirmary Act, passed in 1765, a Court of Examiners, composed of "the Surgeon-General, the visiting surgeon, the two assistant surgeons, and the resident surgeon or doctor of Steevens's Hospital, and the five senior surgeons of Mercer's Hospital," met at the latter locality, and examined candidates who had "served a regular apprenticeship of five years to a regular surgeon"(*c*); so that we may fairly suppose, particularly from his having been surgeon to the Limerick Infirmary, that O'Halloran went through the usual course of study at the time.

But that we intend devoting a separate essay to the early history of medicine in Ireland at a future period, we would deem this a fitting place in which to make some observations upon that interesting subject; for, to no one could it with greater propriety be dedicated than the learned medical antiquary who forms the subject of this memoir, and who had himself commenced the investigation of the subject. We cannot, however, although not quite in the chronological order of a biography, refrain from alluding in this place to his "Proposals for the Advancement of Surgery in Ireland, with a retrospective View of the ancient State of Physic amongst

(*a*) See Dr. Moore's History of Pharmacy in Ireland, among the original communications of the present Number of this Journal, where the various charters are quoted, &c.

(*b*) For the particulars of this circumstance we refer our readers to the Memoir of Dr. Mosse, "surgeon and licentiate in midwifery," published in the fourth Number of this Journal, for November, 1846, vol. ii. p. 567. In Dr. Gray's Report on the Bill for regulating the Profession of Physic and Surgery, &c., Dublin, 1845, we read: "There are no records that I am aware of to show either at what time the surgeons of Dublin freed themselves from the corporate connexion, or whether there did not always exist an unrecognised body of surgeons who were never linked to the barbers, and who never claimed the honour. I am disposed to think there continued to be what we would now call illegitimate practitioners during the whole period included between the granting of the charter to the 'barber-surgeons,' in 1447, and the formation of the Royal College of Surgeons in Ireland, two years after the declaration of legislative independence."—p. 16. The charter here alluded to is the original one granted by Henry VI., and quoted and confirmed by the charters of Elizabeth and James.

(*c*) See 5 Geo. III. c. 20; see also the Memoir of the late Dr. Percival Banks, in the last Number of this journal, vol. v. p. 570. Occasional exceptions were made to "experienced surgeons" who had not exactly conformed to the letter of the Statute, as in the case of Thomas Wilkins of Galway, and John Murphy of Tralee; see 17 Geo. III. c. 8.

us"(*a*); at the conclusion of which we find the following propositions, portions of which evidently appear to have actuated the founders of our College of Surgeons nearly twenty years afterwards, and the spirit of which still actuates the boldest medical reformers of the present day. To O'Halloran, however, let the honour belong.

(*a*) This essay is contained in an appendix to O'Halloran's work on gangrene and amputation, published in October, 1765, and is dedicated to Lucius O'Brien, Esq., representative for the borough of Ennis.

From a quarto manuscript formerly belonging to the diocese of Down and Connor, entitled, "A Book of Presidents for the Ecclesiastical Court, Fran. Wotton, Registrarius," at present in the possession of J. T. Gilbert, Esq., of this city, who has kindly placed it at our disposal, it would appear that the bishops and ecclesiastical courts in Ireland were in the habit of granting licenses to physicians, surgeons, and midwives, as was done by similar authorities in England, as appears by the following interesting extracts:

The following is in the handwriting of the reign of James I.

"*Licentia pro Obstetrice.*

"To our well beloved in Christ A. B. of the parish of ——— Sendeth greeting in our Lord God everlasting. Whereas by due examination of divers honest & credible women wee have found you the said A. B. apt able & expert to exercise the office of a Midwife. Wee therfore doe admitt you & give you Authority to exercise the said office in any place within the Dioces of ——— aforesaid with the best diligence you may or can in this behalfe both to poore & rich, streightly willing & charging you to performe & accomplish all thinges about y^e^ same according to your oath thereupon made & given as followeth.

"1. That you be diligent faithfull and reddy to help evry woman labouring of child as well the poore as the rich, And that in tyme of necessitie you shall not forsake y^e^ poore woman to goe to y^e^ rich.

"2. Item—you shall neither cause or suffer any woman to name or put any other father to her child but only him which is the true father thereof indeed.

"3. Item—you shall not suffer any woman to pretend feigne or surmise her selfe to be deli^vred^ of a childe who is not indeed neither to clayme any other child for her owne.

"4. Item—you shall not suffer any child to be murdred,—maymed or otherwise hurt as much as you may & so often as you shall perceive any evill or jeoprdie likelie to be either in y^e^ woman or child in any such wise as you shall be in doubt what shall chance thereof, you shall then forthwith in due tyme send for other Midwives & expert women in yr behalfe & use their advice & counell therein.

"5. Item—you shall not in any wise use any manner of witchcraft, charmes, Sorceries, Invocations, or any other prayers then may stand with God's Lawes & y^e^ Kinges.

"6. Item—you shall not give any Councell or minister any herbes, medicines, potions or any other thinges to any woman being with chyld wherby shee should destroy, or caste out that she goeth withall before her tyme.

"7. Item—you shall not enforce any woman by paines or other ungodly means to give you more for your paines & labour for bringing her a-Bed than she would otherwise doe.

"8. Item—you shall never consent agree give or keep Councell that any woman be deliv^red^ secretly of that shee goeth with, but in the prsence of two or three honest women & there be two or three lights always reddy, with water also if the woman doe travell by night.

"I. That a decent and convenient edifice be erected in the capital, and three professorships founded: one for anatomy; a second for the disorders of surgery and midwifery; and the third for the operations of surgery; and that each do give a course of lectures in succession every winter free to all people.

"9. Item—you shall be secrett, and not open any matter apprteyning to yor office in the prsence of any man or other unless necessitie or other urgent causes constraine you so to doe, or any otherwise than shall be seemly.

"10. Item—If any child be dead borne you yorselfe shall see it Buried in such secret place as neither hogg, dogg or any other Beast can come to it & in such place & after such sorte done that it be not preceived or found as much as you may & that you shall not suffer any such child to be caste unto the Jakes or any other inconvenient or unseemly place.

"11. Item—If you know any Midwives useing or doeing any thinge contrary to the end of the prmises you shall forthwith detect, open & shew the same to y^e^ ordnary for y^e^ tyme being.

"12. Item—That you shall use yorselfe in honest behaviour towards other women being lawfully admitted to the Office of a Midwife in all thinges accordingly.

"13. That you shall truly present to the ordnary for y^e^ tyme being all such women as you shall knowe from tyme to exercise the office of a Midwife without Lawfull admission therunto.

"14. Item—You shall not assigne or make any Deputy or Deputies to exercise or occupy under you in your absence the Office and place of a midwife But such as you shall knowe to be right honest & discreet & also apt, able & having sufficient knowledge cunning & experience to prforme ye said place & office. Neither shall you consent that any childe borne by any woman who shall be deliverd by you shall be carried away wthout. being baptized in ye parish by ye ordnary Minister where the child is borne.

"15. Item—You shall not be privie or consenting that any priest or other prtie shall in yor prsence, company knowledge or sufferance baptize any child by any Mass, Latine service & prayers, the^m^ such as are appointed by y^e^ Lawes of y^e^ Church of England. But you shall forthwith upon understanding therof give notice therof to ye ordnary for ye Time being. In witness of the prmisses wee have caused our Seal wch wee use in that behalfe to be affixed to these prsents. Dated &c.———"

In the handwriting of the early part of the reign of James I. this precedent appears to have been copied from the Winchester Registry.

"*Licentia. ad exercendum Artem Medici.*

"To all Chrian. people to whom these presents shall come T. R. Doctor of Laws Chancler to the Rt. Reverend father in God ——— Ld. Bp. of ——— sendeth greeting in our Lord God everlasting. Wheras wee have recd. sufficient testimony on the behalfe of ——— of ——— in the County of S——— as well of his honest life & good conversation as also of his knowledge cunning & experience in the Art of Physick & Surgery subscribed with the handes of those to whom he hath ministred physick & practized the Art of Surgery. And that upon due exion. wee have found him well seen & experienced in the Same science or faculty Knowe yee therfore that wee the said T. R. Doctor of Laws & Chancl^r^ aforesaid have Licenced, & by these prsnts. doe Licence & give Leave to the said —— to use the said exercise & to exercise the said Arts or Mysteries of physick & surgery in any place or upon any person within the Archdeconry of S. as by the Lawe & Statute of this realm wee may admitt him. He having first before us taken the oath of Supremacy of the King's most excellent Matie. in these cases provided. And we will that this our Licence or tolleration continue firm &

"III. That an exact list be taken through the kingdom of all reputable surgeons, with their names and places of abode: that no other presume to practise surgery, much less perform capital operations; and that all young surgeons, for the time to come, be interdicted practice till they shall procure a faculty of their abilities, signed by the above professors, or their successors.

"III. In order to procure this, the candidate or candidates must, by written notice, apply for a public examination, and this to be published before the exhibition, which should be from twelve to three o'clock. That this hold for three days: the first entirely for anatomy; the second for disorders of surgery, and if a candidate for midwifery, for this also; and the third to finish with performing all the operations of surgery on a body, with their apparatus and bandaging. When a proper faculty, signed by the professors, is given to the candidate, to which if some little honour were annexed, it might add greater stimulus to the young students.

"IV. That this course be attended with no kind of expense to the candidate; and that it be free to all Irishmen *only*, without distinction; genius being unconfined to principle or party, and such narrow considerations being worthier a little republic of Ragusa than the representatives of a powerful kingdom. And that the number be by no means limited, because the more surgeons of eminence, the better will the public be served.

good unto him untill it shall seem otherwise unto the said Reverend father in God or my selfe. In witness, &c. &c."

In the handwriting of Charles the Second's reign, circa, 1670.

"*Licentia Concessa A : B : ad practicand. Artem Chirurgicam.*

"To all xrian. people to whome these pnts. shall come: R. by y^e^ Grace of God: B. of L: Sendeth Greeting in y^e^ Lord God Everlasting: Whereas for avoyding of any accident dayly happening to many of his Maties. loveing Subjects by the unskilfull practizers of Surgerie It was prvidently provided by speciall Acte of Parliament made for the reformation thereof In the third yeare of the Raigne of our Late Soveraign Lord of famous memory King Henry the Eight That it should not be Lawful for any persons within this Realme of England to use or exercise the Science or facultie of Surgerie, Except he were first Examined approved & admitted According to the Tenor of the said Statute. Know yee therefore that wee the said Reverend ffather having received sufficient testimonie from R: W: C: L: y^e^ Masters or govnors. of the misterie & comonality of Barbers & Surgeons within the City of London incorporated of y^e^ Due examinacion of A: B: of the parish of St. Sepulcher's wtout New gate London a free Brother of the said misterie heretofore approved and admitted to use & exercise y^e^ said Facultie And examined the said A: B: concerning his sufficiencie therein, Doe now by these presents approve the said A: B: to be an able & sufficient Surgeon & he being first solemnly sworne before Sr. E. S. Kt. Doctor of Lawes our Chancellor to y^e^ Supremacie of the Kings most excellent Matie. Wee doe by these presents admitt him the said A: B: to use and exercise the said Misterie of Surgerie Soe farr forth as by the Lawes & Statutes of this Realme of England, wee may lawfully admitt him thereto. In witness whereof we have caused the hand & seale of our office to be sett unto these presents dated y^e^ ——"

"V. That a printed list be published annually of the registered surgeons and men-midwives of the kingdom, with their places of abode, signed by the professors; by which means the public will, *as heretofore*, know where to apply for certain relief.

'Fungar vice cotis, acutum
Reddere quæ ferrum valet, exsors ipsa secandi.—*Hor.*'"

Upon the 7th of August, 1786, two years after the date of the Charter, Silvester O'Halloran was elected an Honorary Member of the Royal College of Surgeons in Ireland, having been proposed by Censor King, and seconded by Vice-President Bowes.

While on the Continent he paid particular attention to the study of the diseases of the eye, which at that time occupied the thoughts of many of the most learned professional men in Europe, and particularly those of Paris and Montpelier. This science was just then emerging from the mystery and obscurity with which the itinerant quacks and mountebanks of the end of the seventeenth century surrounded it; and the discoveries of Petit, Winslow, Morand, Cheselden, and Ranby, were gaining for this branch of knowledge the amount of interest which it deserved. While at Paris Mr. O'Halloran wrote a treatise upon the eye, for the purpose of clearing up some difficulties which then existed, particularly with regard to the seat of cataract. The manuscript of this treatise he laid before the distinguished Dr. Richard Meade, upon his return through London, who strongly advised its publication: and subsequently he placed it in the hands of Dr. Barry, President of the College of Physicians in Ireland(*a*), with the hope that it would also meet with the approbation of that body and their sanction; but it would appear that the college had "neither time nor curiosity" to examine into its merits. He completed the work, however, and sent it to the press in the early part of 1749, and it was published in Limerick the year following, under the title of "A new Treatise on the Glaucoma, or Cataract"(*b*). In this work, abounding in erudition and critical research, we perceive the dawning of that spirit of investigation and literary taste which subsequently distinguished this accomplished scholar and most acute surgeon; and when we remember that it was published before he was twenty-one years of age, and appears to have been written in his eighteenth and nineteenth years, it is, perhaps, one of the most extraordinary performances of the kind extant. As this work is but little known to the ophthalmic surgeon, and has not, we conceive, had that meed of credit awarded to it by subsequent writers, (with the exception of Haller), which it deserves, we here give a short account of its contents. It must be remembered that when it was written pathological ana-

(*a*) Dr. Edward Barry, son to Sir Nathaniel Barry, was President of the King and Queen's College of Physicians in 1749.

(*b*) For the full titles and imprints, &c., of all O'Halloran's publications see the list at the end of this memoir.

tomists and ophthalmic surgeons had not determined what glaucoma was; and although Brisseau, Maitre Jean, Ranby, and Heister, had established, by dissection, that cataract was an opacity of the crystalline lens, and not a filmy suffusion between that body and the iris, like—to use the language of the time—the vegetable production which floats upon the surface of water or other fluid in a bottle, as was generally believed before their day, their doctrines were neither generally received nor understood for many years after(*a*); and that the crystalline could not be the seat of the opacity, it was argued that it (the lens, the supposed seat of vision) was in the centre of the eye, whereas the cataract was so much anterior to it.

The subjects discussed in this treatise are;—the seat of cataract, to which he added several proofs that the "glaucoma was not a different disease, but a different name to express this disorder by," the difference really consisting in the complication of cataract with amaurosis and the curability of the former; next, the subject of the circulation of the humours in the eye, which, after the appearance of Hovius's tract, engaged much attention; and he also in it devotes some space to what he terms anatomical discoveries, in which he endeavoured to show that the iris was composed of radial fibres only, and that the vitreous humour was not surrounded by any proper membrane: he showed, however, that the crystalline lens had no adherence to the ciliary ligament, and described pretty accurately the position and relations of these parts; and asserted that the ciliary ligament and iris receded from the cornea opposite the external and internal angles of the eye. Both in this work and in his succeeding essays on the same subject, he denied the existence of a posterior chamber, and broadly asserted that the iris was not plane, but that

(*a*) Antoine Maitre Jean, *Traite des Maladies de l'Oeil*, Troyes, 1707; Brisseau, *Traite de la Cataracte et du Glaucome*, Paris, 1709; Heister, *Tractatio de Cataractâ et Glaucomate*, Altorfii, 1717. It is generally believed that Brisseau's first observation was made upon the eyes of Bourdelote, Physician to Louis XIV.; but O'Halloran has shown that his original observation was made in 1705, on a soldier who died of diarrhœa, and that the account of the dissection and the examination of the eyes was read before the Royal Academy at Paris, on the 18th of November of that year. "But the academicians seemed to make slight of this discovery, nor did they think proper to give it a place in their works. However, this cool reception did not deter Brisseau from maintaining his new opinion: viz. that it was the crystalline lens which was constantly obscured in the cataract. However," continues O'Halloran, p. 10, "it is to be noticed that though Brisseau and Maitre Jean were the first who evidently demonstrated the cataract to be an opacity of the crystalline lens, yet they were not the first who made that observation, for M. Lasnier, an eminent surgeon of Paris, who died in 1690, made the same remarks forty years before. And though he was countenanced in this opinion by Rohault (*In Tractatu suo Physico*, pars i. cap. 35), and Gassendus (*Opera*, tom. i. p. 371); and that in a little analysis of Mariotte's, *Nouvelles Couvertes touchant la Vue*, it was publicly asserted 'that oculists had found that there was no other way of curing that disorder of the eye called a cataract but by depressing the crystalline,' *Journal des Sçavans*, 1668; yet it was not sufficient to gain it any esteem in the world."

it bulged into the anterior chamber. Now, although the contrary is the normal position of this membrane, there are a great many cases of cataract in which it presents a convex surface towards the cornea, and even in the natural healthy eye we have very frequently remarked the same peculiarity. The removal, however, of the cornea, and consequent escape of the aqueous humour, on dissecting the eye, must always exaggerate this appearance. Among the anatomical discoveries claimed by O'Halloran, in his treatise on the Cataract, is that of a *cartilaginous substance* found by him in the semilunar fold of conjunctiva in front of the caruncle, and which is analogous to the nictitating membrane of some of the lower animals. He appears to have studied the anatomy of the eye very carefully, and made several experiments and dissections in order to arrive at the truth. Among these latter was that of suspending a young dog for some time by the hind legs, then tying both jugulars after the eyes had become suffused; and, having thus produced a natural injection of the internal parts, killing the animal and displaying the vascular arrangement. By this means he showed and figured in the plates appended to his book a very beautiful and minute injection of the vessels on the posterior capsule of the lens. There are two other subjects connected with the anatomical department of this work worthy of notice, viz., the theory now revived by a German oculist, that the aqueous humour is secreted from the back of the iris, and that the hyaloid membrane may be rendered opaque by immersion in various chemical solutions. It is true that there are many errors in the anatomical and physiological portions of O'Halloran's treatise, but they are the errors of the age, and our object here should be to set forth the opinions, not so much to canvass the doctrines of those whose memoirs we indite.

A work of this character, the first of the kind that issued from the Irish press, naturally produced a favourable impression for its author, and ophthalmic practice appears to have followed. A century ago this country was occasionally visited by itinerant oculists, of whom the most remarkable was the celebrated Chevalier Taylor, concerning whose feats the learned world are already acquainted(*a*). As might be expected from the publication of O'Halloran's essay, numbers flocked to receive their sight at the hands of the Limerick oculist, who soon bid fair to eclipse Taylor(*b*).

(*a*) See an Introductory Address delivered at the Park-street School of Medicine, Dublin, 1845, by W. R. Wilde, M. R. I. A., &c., and published in the Lancet for April, 1845.

(*b*) In the Number of Faulkner's Journal for November 26th to 30th, 1745, we find an advertisement from Taylor, who then resided in William-street, to the following effect: "The first Wednesday in January next will begin a short course of lectures on the means of preserving sight, calculated for the studious, to which the gentlemen of the faculty, the College, the clergy, and others of literature, are hereby invited by Dr. J. Taylor, oculist to His Majesty, &c." He also lectured in Stafford-street, and in the theatre in Aungier-street. In the 384th Number of the Philosophical Transactions, vol. xxiii. for 1724–25, we have an account of the operation for depression having

M. Daviel's splendid operation of extracting the cataract through an incision of the cornea, then occupied considerable public attention; and although by no means what the operation is at present, and at the time of its promulgation scarcely understood, still it bid fair to eclipse all former means proposed for the removal or displacement of an opaque lens. Although it is now well known that the French military surgeon commenced his operation by incising the cornea with a lancet, and afterwards enlarging the cut with a scissors, or, according to some accounts, passing a cataract needle through both sides of the cornea, and dividing all that portion of the membrane which lay beneath it with a scissors; yet as the precise mode of performing the operation was not made known by its author, and the first account of it sent to England was only from a spectator, considerable doubt and obscurity existed with regard to his precise method of operating. As the original account was communicated to the Royal Society, O'Halloran addressed a paper on the subject to that body in 1752, and this communication he afterwards amplified into a tract entitled, "A Critical Analysis of a new Operation for Cataract." It was published in this city in 1752(*a*). In this treatise he discusses with considerable ability and research the causes of cataract, the means proposed for its removal(*b*), and details a series of experiments which he performed in order to elucidate the subject. He then gives an account of the operation for

been performed by a Mr. Caywood, "Oculista Dubliniensis," given by Mr. Samuel Molyneux to the secretary of the Royal Society. In this case the eyes of the patient, a pensioner in the Royal Hospital, were, upon his death, some years after the operation, examined by Sir Thomas Molyneux, and the lenses were found to have been absorbed. The case is alluded to by O'Halloran. Besides those special oculists, ophthalmic operations appear to have been performed here by the general surgeons in the middle of the last century. Thus O'Halloran, in his "Critical Analysis," speaking of the success of Daviel's operation for extraction, writes: "In Dublin it bids fair for coming into repute, for my ingenious correspondent and learned friend, Dr. Rutty, informs me that it has been practised with success by Messrs. Dillon and Rooney, surgeons of repute and experience;" and one of these gentlemen invented a scissors with sharp backs, which cut by opening, in order to avoid the contusion and laceration of the cornea.

(*a*) This is, perhaps, one of the scarcest of O'Halloran's works, and for a long time we despaired of its recovery. Our readers will find it, however, bound up with Aitkin's Principles of Midwifery, and other "Medical Tracts," No. 41, in the library of the Royal College of Surgeons. It consists of thirty-nine pages, and is dedicated to "Edward Barry, Esq., of the College of Physicians, Dublin, Fellow of the Royal Society, and Physician-General to the army;" which dedication shows that the slight passed on O'Halloran's former work by the College of Physicians was not then remembered.

(*b*) To Petit, the surgeon, is generally attributed the merit of having first extracted an opaque crystalline, in 1708, in a case in which it became accidentally dislocated into the anterior chamber during the operation of depression; but O'Halloran shows that the Arabian Physician, Jesus Hali, as well as Arculanus, the Italian commentator, Mayerne, and Freytage, had long previously described the operation, performed in one instance, he says, by a "female oculist, on my Lord Rich, son to the Earl of Warwick, with success." See Critical Analysis, pp. 19 and 20.

extraction, on which, did our space permit, we would willingly enlarge, inasmuch as it was one of the best and most original descriptions of that operation given at the time(*a*). The contusion and subsequent opacity of the cornea, caused by the scissors, militated to a certain degree against the splendid success which must otherwise have attended Daviel's operation, and to avoid which the Limerick oculist proposed to incise "the sclerotica, near or at the border of the cornea transparens," a mode of operating which he subsequently reduced to practice.

In order to follow out this subject we must now pass over thirty-four years of our author's eventful life, when, with matured experience, he presented his last essay upon the eye to the Royal Irish Academy, of which learned body he was elected a member upon its establishment a short time previously. This paper, which was communicated by the President, the Earl of Charlemont, on the 22nd of November, 1788, and was published in the second volume of the Transactions, is entitled, "A Critical and anatomical Examination of the Parts immediately interested in the Operation for a Cataract, with an attempt to render the Operation itself, whether by Depression or Extraction, more certain and successful," is divided into sections, containing, a general review of the subject,—anatomical observations on the structure of the iris, and situation of the crystalline, &c.,—the question of adhering cataracts,—the difficulties attending the operation of depression demonstrated,—and the method of extraction explained; to which are added, engravings of the anatomy of the parts. In it we learn that since the period of his former communication, in 1752, he had reduced to practice the mode of operating which he recommended in the "Critical Analysis." Instead of the scissors employed by Daviel and his followers, the disadvantage of which we have already explained, O'Halloran invented a *knife*, double-edged, and also slightly concave on the flat of the blade. His incision is thus described: "With the concave part next me I pierce the sclerotica very near the edge of the cornea,—suppose the third of a line,—at either the external or internal canthus, according to the eye to be operated upon."—p. 140.

Now, from this extract it might appear that O'Halloran was in the habit of performing extraction through the opaque sclerotica behind the iris, as subsequently practised by Sir James Earle, and revived in modern times by Quadri and Sichel; and we confess that a superficial perusal of the dissertation in the Transactions of the Royal Irish Academy (which is undoubtedly inferior in clearness and perspicuity to any of the author's other writings), might, at first, lead to that opinion. The contrary, however, is the fact. By

(*a*) In the manuscript memoirs of the Medico-Philosophical Society of Dublin, of which we gave an account in the preface to the first Number of the present series of this Journal, we find that at a meeting of that body, held upon the 5th May, 1757, Dr. Nathaniel Barry read part of a letter from Mr. Silvester O'Halloran, a surgeon of Limerick, giving an account of his couching a cataract by the new method of Daviel, with success, &c.

the sclerotica O'Halloran meant that undefined line at the junction of cornea and sclerotica which exists between the perfectly transparent edge of the former and the ciliary ligament and attachment of the iris, which he believed, as already stated, receded considerably upon each side, in the transverse axis of the eye. His incision was a perfectly lateral one, made by two cuts, commenced at the point of the transverse axis, where from the receding of the iris, he believed there was more space, and extended into the transparent cornea. To use his own words, "advancing the incision to the edge of the cornea transparens, as the distance between the iris and sclerotica approaches closer to the cornea the farther you go from the sides of the eye;" and that this must have been a corneal incision is evident from the passage of the instrument being "proved by part of the aqueous humour escaping, and by your seeing its point within the cornea between it and the iris." "Thus," he continues, "nearly one side of the sclerotica (cornea) from top to bottom, at its junction with the cornea, becomes divided; with the point of this very instrument you prick the crystalline capsule, and the smallest inclination of it inside the pupilla will do this; and then gently press on the globe of the eye, the cataract will slip out."—p. 140. La Faye, Warner, and Sharp, had, it is true, previously performed the extraction with a knife, but at a considerable distance within the external border of the cornea, so that extensive opacities were frequently the result.

We have dwelt thus at length upon O'Halloran's operation, because it has been generally overlooked, and because, from the term "sclerotica" having been employed by him, it required some explanation.

Besides his various published works, O'Halloran wrote "A new Philosophical and Medical Treatise on the Air, in two Parts, wherein its real properties are investigated against Toricelli, &c., and Physicks attempted to be settled on more solid and rational Foundation." This is a manuscript quarto of 172 pages, in the library of the Royal Irish Academy. It is divided into chapters and sections, and is written out with considerable care in the handwriting of the author; it does not, however, bear any date upon the title-page, but from the state of the writing in the text, and various additions and marginal notes made to it in the same hand at a later period of life, it would appear to have been written and revised at different times. At the commencement and the conclusion of the volume we find a preface, the former dated in September, 1755, the latter in May, 1756, from which somewhat of its history may be gleaned. He states that when he first commenced the study of physics he "carefully considered every particular part of that unbounded science, and remarked such doubts as appeared. Amongst other parts, the system of the air's gravity, and the supposed weight of air; bodies supported without becoming sensible of it, seemed to me very odd. And when in other places the amazing elasticity which most bodies, and particularly air, were supposed to have, seemed entirely to destroy its gravity, I did not scruple to take down notes of these things, and

now and then make experiments to clear up fresh doubts, till such time as in the year 1749, that I published my new treatise on the cataract; then I found myself quite at liberty to pursue my *first* inquiry. In 1751 I intended publishing it, and actually made some steps towards that; but as I proposed going abroad again for some further improvements in my profession, and particularly in the obstetric art, I thought it more prudent to defer my design for some time longer, and to try at my leisure what further improvements I could make." It then appears to have been prepared for the press with considerable care, and this preface thus concludes: "I flatter myself, however, if I have not completed, I have at least struck out a road for future philosophers, as, if well pursued, will make us truly worthy that name. And if in any place, through inadvertency of design, any expressions may be found which might seem censorious, I hope they will be imputed more to a laudable design for the improvement of real knowledge than to an intent of reflecting on any particular science or persons. And let us often think on that praiseworthy saying of the sage Seneca, 'Puto multos ad sapientiam potuisse pervenire nisi putassent se pervenisse.'—O'H. Limerick, September 20, 1755(*a*).

He wrote another preface on the 2nd of March, 1756, and a third on the 20th May following, in which he says:

"In the ensuing treatise, though we have attempted to introduce a new system of philosophy, one nearer nature, as being more correspondent with her works than the established one, yet our induction has been only from effects, not by laying down of imaginary principles. The small success that has attended the greatest men in attempts of this nature, and the very little advantages that mankind have gained by such methods of inquiry, should convince us how fruitless it must ever prove. But to explain the method we have pursued: for instance, we have proved that there is through nature a *vis inertia* or sluggishness of matter, so that there must be a force exerted to put matter in motion, and this force must be continued to preserve this motion; that solid bodies must be supported by solider or firmer; and that nature must have certain limits. From this we inferred that the massy body of our globe could not be supported in its motion round the sun by the ether, and that it was really a body fixed and permanent, and that our world was limitted by the celum empyreum, or firmament; that as air is a medium absolutely necessary for the distinction of luminous bodies, and that the distance of enlightened bodies considerably augments their diameter, we naturally concluded that the space from the

(*a*) Upon this front leaf of the volume we find the O'Halloran arms, with an heraldic description of them, thus:

Crest.—A lizard proper.

Arms.—Gules, a horse argent, caparisoned, trotting on a chief argent. Three mullet stars azure, pierced.

Motto.—Lorum ꝛ marbam. (I wound and kill.)

Name.—Ohallupam. (O'Halloran.)

earth's surface to the celum empyreum was replete with air; that this space could not be very high, and that the stars could not be these monstrous massy orbs, and at so illimitable a distance. In the further pursuits of this system, where we had not nature to conduct us, we have communicated what seems to us most natural, but still as conjecture, but we have not attempted to inquire into first causes. This system has been the consequence of our inquiries into the properties and effects of air, and these inquiries began almost as early as our knowledge of philosophy, for the very experiments shown me to prove the air's gravity incline me to think that they had some other cause. This made me dedicate some time to this inquiry, and become better acquainted with the different writers on this head. The experiments and reasonings on this head which lay scattered, I had collected, and put into some form for publication, in 1751, as presuming they might furnish some useful hints to the curious. But as I intended spending some further time abroad, I considered that I had better opportunities of making new experiments, as well as of perusing many books on this head which are not to be met with but in large libraries. On these accounts I was determined to let it lie some considerable time longer in obscurity, and I found no cause to repent of this delay."

The following are the contents of this work:

"PART I.

"CHAPTER I.—Of the air, its height and gravity, according to the modern acceptation.

"CHAPTER II.—That air (much less heavier bodies) is not porous; that is to say, that one body cannot insinuate itself into the interstices of another without also proportionately increasing the surface of the body pervaded.

"CHAPTER III.—That the levity and subtilty of certain bodies (the air for instance), so far from being the cause of their pervading heavier bodies, will be their greatest obstacle; in which the phenomena of the diving-bell and the detonation of gunpowder will be occasionally considered.

"CHAPTER IV.—Showing the true cause of the suspension of liquors in cylindrical tubes, with remarks on thermometers.

"CHAPTER V.—That air is a body perfectly homogeneous, neither generated nor corruptible, but to have existed from the beginning; with remarks on other bodies.

"CHAPTER VI.—Proposes from the foregoing a new cosmogony.

"CHAPTER VII.—The system of Copernicus and Galileo examined, and the advantages of the preceding one further illustrated.

"PART II.

"CHAPTER I.—A description of the air, its real height, gravity, and colour.

"CHAPTER II.—Of the contractile and dilatative force of air, with remarks on elasticity, heat, and cold, &c.

"CHAPTER III.—Of respiration.

"CHAPTER IV.—Of epidemic disorders, and how far the air really contributes towards them.

"CHAPTER V.—Of winds.

"CHAPTER VI.—Of the seeds of insects supposed to be lodged in the air.

"CHAPTER VII.—Shows the cause of the blood's fluidity, and explains other phenomena which depend on it.

"CHAPTER VIII.—Treats of salutary and unwholesome air."

This work exhibits a vast amount of learning and great depth of research. The four last chapters of the second part are well worthy the attention of those engaged in the investigation of the subjects on which they treat(*a*).

In the "Repository" of the Medico-Philosophical Society, preserved in the Royal Irish Academy, we find a letter of O'Halloran's, dated June, 1762, directed to Mr. Cleghorn, giving an account of a monstrous fœtus, in which the abdominal viscera were contained in a large cyst attached to the abdominal parietes at the seat of the umbilicus.

To our friend, Dr. Thomas Wright, we are indebted for the use of a collection of manuscripts in the handwriting of O'Halloran. These consist of a memoir upon "hydrocephalus from an external injury, with remarks on hydrocephali in general," written in 1781; also a "selection of a few anomalous cases of midwifery," to which there is no date, but from the notes of the cases it is evident that it was written subsequent to 1773; and three letters addressed to the distinguished William Dease, in 1786, from which it would appear that the essays enumerated above were sent, through Mr. Dease, for publication, to the Royal College of Surgeons. In that dated 22nd April he says: "My absence in the county of Tipperary for some days will, I hope, plead my excuse for not acknowledging your esteemed favour of the 8th inst. sooner. I am much pleased that the cases I sent

(*a*) In the fourth chapter of this part O'Halloran states that "the winter of 1674 was remarkably warm and mild, with scarce any rain in Ireland, which made people fear that the following season would be a very fatal one; but the succeeding harvest was remarkably good, and universal good health reigned all over the kingdom, and the notion of plagues being produced by an infected air is deemed by that learned gentleman Dr. Molyneux of Dublin, for a very vulgar error."—See also Molyneux's Paper in the Phil. Trans. p. 1694; and biographical memoir of him in Dublin University Magazine for 1841.

O'Halloran rather inclined to the opinion that the "efferent cause of epidemic disease was not in the air; but unwholesome diet, a scarcity of it, or an immediate alteration of our accustomed manner of living, certainly produce diseases; for it appears by what has been said in the last section, that let the alteration of the seasons be ever so unnatural, provided that provisions of all kinds are plenty, we need apprehend no bad consequences from the change of weather. We shall still make this assertion clearer by examining the great mortality that happened all over Ireland in the year 1740. In the beginning of November, 1739, we had a very sharp, cold, northern wind, and which continued for almost three weeks; this was succeeded by the severest frost known here in the memory of man, *which wholely destroyed the potatoes*, the chief support of the poor, and provisions of all sorts became excessive dear, and they would have perished for want but for the generous and bountiful contributions of the public. About the beginning of March, when the frost began to abate and business became brisk, they fell into a better and wholesomer diet, but the juices made from their former hard fare ill agreeing with a wholesome and more nutritious chyle, produced many gripes and dysenteries, which swept off numbers of people. But as the summer following, which was remarkably warm, advanced, the remains of this leaven turned out into violent fevers equally fatal."

met with your approbation, and that the College approved of my endeavours to second their views, so honourable, I hope, to our country, and so useful to mankind. I should be glad to know if they were handed over to Mr. Henthorn for publication. If so, accept of the following as a codicil to them." At a future period we hope to insert these various communications at length in our Medical Miscellany, but here they would occupy more space than we could devote to the subject. The insertion of the following extract from the letter of the 2nd June, will, we feel, be acceptable : " You apologize for not writing earlier as wishing to lay my papers before the College before that period. I am highly sensible, my dear Mr. Dease, of your friendship and predilection for me, and this even before I had the pleasure of a personal acquaintance with you. I have been well informed that, through your solicitation, I was admitted an Honorary Member of the Chirurgical Society, with my esteemed friend Mr. Adair.(*a*) I have a letter of the secretary's, informing me that they waited for a Royal Charter before they would make any publications; and I as naturally concluded, when this event took place, that I was as much a member of the new society as of the old. There is an old adage, *qui cito dat, bis dat.* As the smallest demur has taken place, it becomes no longer an object worth consideration by me. Being a member of all the literary societies in Europe will not add a single iota to a man's real merits; but such societies reflect honour to themselves, when they embellish their catalogue with meritorious and illustrious names. This little stricture is, my dear Sir, reserved for your own perusal. I have not seen John Hunter's work, but know that it has been advertised in the English papers above a month. I know him personally, and have seen him operate at St. George's, where my friend Bromfield attends. As I lodged in Parliament-street, when last in London about my History, I had frequent cards from some hospitals, particularly St. George's, whenever operations took place. Hunter's character is respectable, and his collections much esteemed; but, considering his confined and narrow education, I should expect nothing very remarkable from

(*a*) This allusion to a Chirurgical Society again brings us back to the state of the surgical profession in Ireland at the period specified. So early as the beginning of the year 1780, the principal surgeons in Dublin, feeling the disadvantages of their legal and corporate connexions with the barbers, formed themselves into a society called " The Dublin Society of Surgeons," which met once a month at a tavern, for the purpose of transacting business. The minute book, containing the rules and regulations of this body, is still in existence in the College of Surgeons. It was the intention of this body to publish transactions, and the MSS. of O'Halloran, alluded to in the text, appear to have been forwarded to Mr. Dease for that purpose. Both Silvester O'Halloran, and Robert Adair, of London were elected Honorary Members of this body. It was the " Dublin Society of Surgeons" which procured the charter of George the Third, and achieved the incorporation of the Royal College of Surgeons in Ireland four years subsequently. Henry Morris was President of the Society, and the names of its members are all enumerated in the first section of the early charter of the College.

him: *however, I should suspend my judgment.* You conclude your letter with an offer of your services; I accept of this offer with the same candour I would give it. I told you that I had left in town a treatise on injuries on the head, which was to have been published in eleven weeks. I had entered into a written agreement with a Mr. Whitestone,—who, I believe, is nobody; at least, I am sure with respect to me he is devoid of truth. He had long amused me, but upon inquiry I found he never committed the work to press. Whether he made any indirect use of my manuscript, or had a copy made out for his own purpose remains to be explored; but the manuscripts I have got out of his hands. Well acquainted with booksellers, and in general with their not being 'righteous overmuch,' I wish to make it the interest of one of them to engage in the present, as I did Ewing some years since, but Whitestone is not the man."

From the memoir supplied us by Dr. Kidd we quote the following account of his other professional work:

"Among O'Halloran's succeeding literary performances we find a Complete Treatise on Gangrene and Sphacelus, with a new Mode of Amputation, published in 1765, which is, perhaps, one of the scarcest of his works at present.

"He attributes gangrene to a 'vitiation of the humours,' and a 'want of the balsamic and nutritive properties of the blood;' recommends surgeons not to be too hasty in amputating, but to wait till the case is at its last, instead of the indiscriminate practice of amputating the moment gangrene is suspected; advances many forcible arguments to support his position, and several good recoveries in his own and others' practice; advises a discontinuance of the practice of making incisions in mortified parts, and recommends bark and wine. He also enters at very considerable length into all the varieties of the disease, and divides mortification into three classes: *gangrene*, *sphacelus*, and *esthiomene*, or the highest degree, from which recovery is impossible.

"The second part of the work, on Amputation, is, perhaps, not as orthodox as that on Mortification; it is referred to, however, in Thompson's very valuable lectures on the subject, and again by the Coopers. The history of amputation, however, previous to the time that O'Halloran wrote, throws considerable light on the subject; for when one considers the number of different, and not unfrequently opposite opinions, that distinguished the earlier advances of surgery, it is not, perhaps, to be wondered at that O'Halloran, as he does here, should propose such a thing as to defer laying down the flaps of the wound till the end of the first ten days! Ambrose Parè, and after him Dionis, had ventured, it is true, on the 'fearful' innovation of tying the arteries in place of the actual cautery; many surgeons, among others Baronius, in the seventeenth century, still preferring to err with Galen than go right with the illustrious Frenchman. Wiseman, a century after, insisted on the ligature, and the necessity of drawing the flaps over the stump, and either

fastening them with stitches or a light bandage; the wound at this time being invariably a large, suppurating one, healing very slowly, the ends of the bones, of course, projecting and perishing: indeed, at this time it was thought impossible to heal a stump before the bone had exfoliated. Yonge was perhaps the first, in an obscure production, termed *Currus Triumphalis e Terebintho* (of all places in the world to look for such a thing!), that offered a hint of curing the wound '*per symphisin* in three weeks,' without fouling or scaling the bone. Even Larrey himself, with all the best surgeons of his time, were in the habit of introducing *charpie* under the flap to prevent union by the first intention.

"At this time appeared O'Halloran's book, which seemed something like the advice given to Phaeton reduced to surgery, *in medio tutissimus ibis.* A very general dogma prevailed,—quite a maxim, in fact,—that when the fresh-cut flap was laid over the end of the bone, inflammation and abscess were inevitable. O'Halloran recommended to defer laying down the flap till the danger of inflammation was over; in the mean time to dress the flap and stump as *distinct* surfaces, to preserve their power of uniting *per symphisin.* He performed the operation several times! and even states that after ten or twelve days the edges of the wound have united together very quickly.

"'To most men,' in the fine figure of Coleridge, 'experience seems like the stern-lights of a ship, which illumine but the track it has passed.' This cannot be said of the subject of our memoir; he evidently thought for himself, but, in the subject under our present consideration, with less happy effect than in those previously alluded to. Here, indeed, ancient dogmas and prejudices were against him, and his reasoning led him but half-way out of the ancients' track into still greater darkness and obscurity.

"His next professional work, entitled, 'An Attempt to determine with Precision such Injuries of the Head as necessarily require the Operation of the Trephine,' was printed in the Transactions of the Royal Irish Academy, in 1791. As he subsequently published 'A new Treatise on the different Disorders arising from external Injuries of the Head,' which embodied these observations, we shall consider them both together. They were written at a time when Mr. Pott (the only respectable authority on the subject at the period) complained of the darkness and obscurity of this part of surgery. Enabled, however, by close and diligent observation, and extensive practice for thirty years, during which, on an average, we have been told, he used to boast of three fractures every week, the result of party-fights in several of the southern districts, he set about to determine the question proposed in his paper published by the Academy, perhaps the nicest and most involved in surgery: at a time, too, when the French Academy directed the *trepan*, or *trephine*, in all cases of fractured skull indiscriminately, on the more than questionable principle, 'Veniente occurite morbo,'—and when Pott, from whose opinion there seemed to be no appeal, countenanced the same ruinous

mode of proceeding. Our own Dease, however, had commenced the good work of reformation in 1778.

"Abernethy, I need scarcely say, exposed the error of Pott's practice in a very masterly manner; but it is only a matter of justice to O'Halloran to state that he was one of the first who broke through the dogmatism of Pott and his friends of the Academy: 'Non fingendum, aut excogitandum, sed inveniendum, quid natura faciat ante ferat,' are the memorable words of Bacon, which he himself uses. 'To point out with perspicuity and precision the cases in which it (the trephine) can be useful to the patient, is the object of this Paper,' says O'Halloran; 'long experience having convinced me that many fractures require no operation.' Abernethy, exactly twenty years after (1811), for which he gets a world of credit, acquainting us of the French practice being so very faulty, and that of Mr. Pott, 'who advised the operation *invariably*, to prevent the inflammation and suppuration he so much apprehended,'—'many cases having occurred of late,' says Abernethy, 'where, even in fractures with depression, the patients have done well without an operation;' but no allusion whatever is made to the subject of our memoir, who had told the world the great fact long before.

"When we recollect, indeed, that after O'Halloran came Desault, and Schmucker, and Abernethy, and Larrey, and the great Sir Astley, it is but fair to assign O'Halloran that distinguished place among these men to which his labours so eminently entitle him. Indeed, reading this Essay, one is at a loss which to admire most, the masterly style in which it is written, or the crowd of facts he adduces to support his views. After a few preliminary observations relevant to the subject, he begins by citing a number of cases in which the fracture, contrary to the ordinary practice of the time, did not require the trephine; these are followed by some excellent practical remarks, and a second series of cases, many of them apparently less grave than the previous ones, yet where the proper use of the instrument saved the life of the patient. We find him urging at the same time, with no little force and reason, that the *symptoms* were to be the guide, not any axiomatic rule or law of any sort; in point of fact, the advice of the best surgeons at the present hour.

"He also takes up the consideration of the subject, whether the trephine should not be used in all cases of manifest *depression*. Some cases are given, not unlike many of those in the work of Klein (*Chirurgische Bemerkungen*), his opinion being that, under such circumstances, 'no consideration should make the surgeon decline or procrastinate' the operation.

"The concluding part of the Essay being taken up with the subject of 'Concussion of the Brain,' generally supposed to require the trephine, which, however, he opposes, notwithstanding the advocacy of Mr. Pott and Dionis, a writer of the previous century,—O'Halloran, laying down the then new but very sound rule, that concussion of the brain, characterized by *immediate* stupor and insensibility, does

not require the trephine unless accompanied with evident depression of the skull, or extravasation, neither of which produces bad symptoms for *some time after* the accident which has given rise to them.

"Among his other remarkable achievements, O'Halloran, we may say, was the founder of the County Limerick Infirmary. An old lady, yet alive, recollects distinctly his renting three or four houses, which he threw into one, for the reception of the sick and maimed, all his ingenuity and address being scarcely equal to the task of keeping it open. He was associated, it seems, with a gentleman named Vandeleur, who was also a surgeon. As subscriptions increased the beds were multiplied, and the benefit to the public was soon found to be so great, that further means were taken to extend the usefulness of the charity, a new building having been erected. This happening to be in the county, and an Act of Parliament having been just passed while it was in progress, for the support of such institutions, it was called the 'County Infirmary,' to enable it to come within the requirements of the Act. We have been curious enough to look into some of the earliest books connected with this institution, preserved with wonderful care and accuracy, and find the name, as given under the accompanying engraving, signed to almost every meeting of the Committee; O'Halloran himself being generally in the chair, or taking a very active part in the business of the meeting, as betrayed in several instances by his handwriting. About this time, the local history tells us, that Whiteboys first made their appearance in the south, and with them party-fights of every shade and character, so that the Infirmary soon became a sort of *sine qua non*, quite as necessary as the gaol, of which at present it seems but the outer porch. I may, however, add, that the building formed into an hospital by O'Halloran is not that now in use for this purpose.

"A strange mixture of industry and carelessness, O'Halloran is yet remembered by all the old people in Limerick, as a man of wonderful ability, with, at this period of his career, but little practice outside the walls of the Infirmary; his entire time nearly given up to literature and the discovery of antiquities. His house is yet in existence, in the old, but by far the most interesting part of the city, the resort of all the foreigners and *literateurs* that happened to visit this part of the country at the time. The tall, thin doctor, in his quaint French dress, with his gold-headed cane, beautiful Parisian wig, and cocked hat, turning out every day very responsibly to visit his patients,—visits, as he described them himself, that partook too much, according to his taste, 'of the nature of those of angels.' Among his other recommendations, an old friend of his has told me, that he valued that one lauded in the Gospel, 'being given to hospitality.' This gentleman having often dined with him, particularly the day he was elected an honorary member of the College of Surgeons, when, at a late hour of the evening, the 'Health' of the College was drunk by the Doctor, with a capital speech and a crowd of fine compliments.

" At some meeting of this sort, a story is told of his falling out with some one,—a gentleman ever boasting of his bravery, but withal a most arrant coward, something like a person he speaks of in his history(*a*). The Doctor challenged him, but next day the gentleman felt considerably like Bob Acres, and sent the most abject apology, accompanied even with a stipulation that, if O'Halloran pleased, he would allow him to horsewhip him in the public room, —anything rather than fight. O'Halloran consulted his friends, who seemed unanimous that he should give this person a threshing. 'Look'ee, Sir Lucius, there's no occasion at all for me to fight,' says Bob Acres : 'when it comes to the point, if it is the same to you, I'd as lieve let it alone.' So thought this foolish braggart. O'Halloran, however, was in the hands of his friends, and he was obliged to conform to their directions. The morning arrived; the room was crowded with people, anxious to see the gentleman paid off. O'Halloran, with his cocked hat and ruffles, arrived, and, to the great satisfaction of every one present, was quite as good as his word, as he laid on in the most unmerciful manner. This at once brought him into notice,—indeed, did more for him than if he had just discovered the circulation of the blood. Such the caprice of the time, and such the qualification for a Munster surgeon in 1770."

Having thus enumerated his several medical and scientific productions, it now but remains briefly to notice his various literary and antiquarian labours; we say briefly, because, however inviting the subject, it is less suited to the pages of a purely professional periodical than those labours to which we have devoted the previous portion of this essay. Whatever opinion may now exist with regard to O'Halloran's historical researches, it should always be borne in mind, that he was one of the few modern historians in this country who possessed the power of reading our Irish manuscripts. His first essay in this department of literature was the "Insula Sacra," a small work, apparently printed for the purpose of preserving our ancient Annals(*b*); and a more worthy theme could not possibly have engaged an Irish antiquary's attention towards the close of the last century.

Two years afterwards appeared his Introduction to the Study of Irish Antiquities, a work of great erudition and research, and rather in advance of than behind the knowledge of its time, but imbued in many parts with the fanciful theories which are set forth at length

(*a*) " This story is too good to be lost. We recommend it to the readers of Michelet, always talking of the characters of the *Bourgeoisie*. The prince of Saxe Hilburghausen, a desperate braggart, one day descanting on the high antiquity of his house,—that his ancestors were dukes and so-forth in the reign of Charlemagne,—General O'Donnell, an Irishman, descended from the people, coolly answered: 'Mon Prince vous etez bien heureux d'avonce etir né en Allemague. Si vous etiez chez moi a peine duriez vous *le droit de bourgeois !*' "

(*b*) This little work, which was printed in Limerick in 1770, is the only one of his writings not now before us. It is enumerated by Ferrar.

by Dr. Ledwich(*a*). To this work, some animadversions upon Mac Pherson's History of Great Britain and Ireland, and remarks upon Sir John Dalrymple's Memoirs on the same subject, were appended. This is the work to which the author refers in his letter to Mr. Dease, given at page 19, when speaking of Ewing, the bookseller, by whom it was published. The work appears to have been completed in October, 1771.

In 1774 O'Halloran published his "Ierene Defended," which was written to refute certain passages in Dr. Leland's and Mr. Whittaker's works, which seemed to affect the validity and authenticity of ancient Irish history. This is a quarto tract of thirty-six pages, addressed in the form of a letter to Sir Lucius O'Brien, Bart., the President of the Antiquarian Society, which then existed in the city, and some of the records of which are still preserved in the Royal Irish Academy(*b*).

"To follow this able writer in chronological order," continues Dr. Kidd, in his memoir, from which we have already quoted, "we should be led into the attractive but somewhat discursive field of Irish literature, in which were spent the latter part of his intellectual labours. Distinguished by no ordinary talent, and an erudition that investigated every variety of Irish subject, O'Halloran's name was well known all over the Continent; indeed, as he often expressed it to some of his still surviving friends, he was 'never more at home than when abroad.'

"In Limerick, a literary society, composed almost exclusively of medical men, if not founded, was chiefly supported by his labours. At his death, however, it was dissolved, and I have not been able to discover its records, or any traces of its former existence. Two other old practitioners, now no more, Dr. Hardinge and Dr. Grogan, and an intellectual old gentleman named Hogan, were no insignificant pillars of this establishment(*c*). His General History of Ireland, however, during the latter period of his life, engrossed his chief attention. This appeared originally in two quarto volumes in London,

(*a*) At page 204 of this work we find a most interesting and learned dissertation upon the mineral riches of Ireland, which he appears to have written as a censure upon Dr. Gerard Boate's assertion, in his Natural History, that all the mines known in Ireland were "discovered by the New English, that is, such of them as came here in and since the days of Queen Elizabeth." Our space will not permit us entering at length upon this subject, nor is it one that requires to be discussed at the present day; but we would recommend the perusal of this chapter to those engaged in describing the resources of Ireland.

(*b*) The Antiquarian was a section of the Royal Dublin Society. O'Halloran was one of the committee.

(*c*) See the Editor's preface to the first Number of the present series of this periodical, p. 31; see also the Anthologia Hibernica, vol. iii. p. 251, for April, 1794, in which we find an article by Silvester O'Halloran, M. R. I. A., Honorary Member of the "Physico-Surgical Society," being "an attempt to ascertain with some degree of precision the question relative to vacuum and plenum, read at the Limerick Literary Society, June 2nd, 1792."

in 1778. His Introduction to the Antiquities had spread over the Continent in every direction; and he informs us, that it was everywhere received with approbation,—compliments of a very flattering nature having been received by him from some of the most distinguished characters in France and Italy; and in 1778, he says, "so great had the demand for it become, that three hundred copies were obliged to be shipped for Madrid, besides an immense quantity for India, Italy, and France."

"In what light this work might be considered in his own country, he seemed at a loss to conceive, but comforts himself with the assurance, which we cannot but admire for its candour: 'I am sensible,' says he, 'that men reluctantly part with their prejudices and their opinions; and the latter periods of our history have been so shamefully misrepresented, that it will require some time to establish antecedent facts. But let it be considered in what light it may, my intentions fortify me against the event.' When preparing his History for the press, we know that he enjoyed almost the entire surgical practice of this city, and his time was entirely occupied between it and the reading and deciphering old Irish manuscripts, of which he possessed a large collection. 'Though few people possess a greater affection and veneration for their native country, I little thought,' he says, in the Introduction to his General History, 'that this would, one day or another, engage me to draw my pen in its defence. It appeared to me, that if some generous attempt at a general history was not speedily undertaken, the Annals of our country, so important to letters, would be for ever lost. Could I have foreseen the tenth part of the labours and difficulties I had to encounter, in all probability it would never have appeared.' To us, writing at this distance of time, it seems almost incredible how O'Halloran could have written his history in a place like Limerick, where, even at the present moment, there is not one literary or philosophical society of any account. He had, however, himself transcribed some valuable Gaelic manuscripts in the Irish College at Paris, and he obtained several others by advertising in the Dublin newspapers of the time(*a*).

(*a*) O'Halloran's General History is now but little referred to, as the most valuable and accurate portions of it are to be found in Colgan and O'Flaherty. It is distinguished throughout by great national enthusiasm and considerable erudition, but its topographical descriptions, though on the whole tolerably correct, have been in many instances revised and altered by modern investigators. With the accurate dissertations of Dr. Petrie, Mr. O'Donovan, Mr. Hardiman, and Mr. Curry, with the Transactions of our Academy, the Annals of the Four Masters, and the Tracts of the Archæological and Celtic Societies, it will, no doubt, lose by the comparison;—still it was an astonishing performance at the date of its publication; for by it, to quote the concluding paragraph of his second volume, "the Irish of modern days have an opportunity of renewing their acquaintance with their great, their long-neglected ancestors, and I am persuaded that neither they nor their country will be worse for this information." O'Halloran's Irish History is still well known on the Continent, and it is, we believe, the only one which has been translated into German.

"Silvester O'Halloran was married at rather an early period of life, and had three sons and one daughter, all now dead: one of his sons died in mere boyhood. One son, General Sir Joseph O'Halloran, K. C. B., served in the East India Company's service for upwards of fifty years with distinguished merit(*a*). Another son died while occupying some high military appointment in the West Indies. The Doctor seemed to have early imbibed a favourable impression towards a military life, and one of his oldest living acquaintances lately informed me, that, while residing in London, in 1745, he entertained serious notions of joining Charles Edward, then in the zenith of his progress through Scotland. He died at a very advanced age, in the early part of the present century, and was buried in the little churchyard of Killeely, near this city, beneath a tombstone on which he had himself caused to be engraved a Latin inscription recording the virtues of his wife and daughter; but no friendly hand has added a line to record the labours and genius of this most distinguished Irishman."

In Miss Brooke's preface to the "Relics of ancient Irish Poetry," published in 1788, she says that she is greatly indebted to the learning of Silvester O'Halloran for much of the information contained in that work. It was not unusual, even at the time that O'Halloran wrote, for poems to be addressed by bards and poetasters to distinguished medical practitioners(*b*); and an Irish poem of this nature was addressed to the subject of this memoir by Thomas Meehan, a Clare poet of some note, and one of the last of the rhymers, towards the close of the last century. It is preserved in the Royal Irish Academy, and we are indebted to our learned friend, Mr. Curry, for a translation of it.

The following is a list of works published by O'Halloran, as well as the Papers communicated by him to the Transactions of learned societies:

"A new Treatise on the Glaucoma, or Cataract. By Sylvester O'Halloran, of Limerick, Surgeon. Dublin: printed by S. Powell, Crane-lane. 1750." Plates. 8vo. pp. 115. This work was concluded upon the 12th April, 1749. It is dedicated to the celebrated Dr. Meade.

"A Critical Analysis of the new Operation for a Cataract." Dublin: Powell. 1755. 8vo. pp. 39.

"A complete Treatise on Gangrene and Sphacelus, with a new Method of Amputation. By Mr. O'Halloran, Surgeon. Limerick:

(*a*) Our friend Charles P. M'Donnell, Esq., has just placed in our hands the following extract of a letter received last year: "The late Lieutenant General Sir Joseph O'Halloran was married to an aunt of the present Marquis of Anglesey; he served fifty years in India, and was a most distinguished officer; he was a tall, thin, soldier-like looking man, and very amiable. He died in London about five years ago, aged eighty years, but in mind and appearance he seemed thirty years younger."

(*b*) A most curious collection of these poems will be found in Peter Lowe's "Discourse of the whole Art of Chyrurgerie," printed in 1612.

printed by A. Welsh, for the Author." 1765. 8vo. pp. 289. This book was originally published by subscription, and dedicated to the Earl of Hertford, then Lord Lieutenant of Ireland. It was reprinted in London by Vaillant the same year.

"Insula Sacra, or the general Utilities arising from some permanent Foundation for the Preservation of our ancient Annals demonstrated, and the Means pointed out." Limerick. 1770.

"An Introduction to the Study of the Antiquities of Ireland, in which the Assertions of Mr. Hume and other Writers are occasionally considered. Illustrated with Copper-plates. Also, two Appendices containing: 1. Animadversions on an Introduction to the History of Great Britain and Ireland, by J. Mac Pherson, Esq. 2. Observations on the Memoirs of Great Britain and Ireland, by Sir John Dalrymple.—By Silvester O'Halloran." Dublin: printed by Thomas Ewing, in Capel-street. 1772. 4to. pp. 384.

"Ierne Defended, or a candid Refutation of such Passages, in the Rev. Dr. Leland's and the Rev. Dr. Whittaker's Works, as seem to affect the Authenticity and Validity of ancient Irish History. In a Letter to the Antiquarian Society." Dublin: Ewing. 4to. pp. 36. 1774.

"A General History of Ireland, from the earliest Accounts to the Close of the Twelfth Century, collected from the most authentic Records, in which new and interesting Lights are thrown on the remote Histories of other Nations, as well as of both Britains. By Mr. O'Halloran. London, 1774: printed for the Author by A. Hamilton; and sold by G. Robinson, J. Murray, and J. Robson, and in Dublin, by Messrs. Faulkener, Hoey, and Wilson." 2 vols. 4to. —Vol. i. pp. 307; vol. ii. pp. 416. This work is dedicated to Murrough O'Brien, Earl of Inchiquin, and was published by subscription. The subscription list exhibits the names of a great number of Irish gentlemen, then resident abroad, and chiefly in foreign service. O'Halloran's Introduction and History were republished in 3 vols. 8vo. by Fitzpatrick, Dublin, 1803. This is the edition quoted by Michelet, in his *Histoire de France*, liv. i. chap. 4.

Another edition, in 3 vols. 8vo., was also published in Dublin, 1819, by Christie. A fourth edition was published in Cork.

"A Dissertation on the ancient Arms of Ireland." Originally sent to the Irish Antiquarian Society, and published in the 1st Volume of the *Anthologia Hibernica* for 1793.

"Sylvester O'Halloran, M. R. I. A., Surgeon to the County of Limerick Hospital, his Critical and Anatomical Examination of the Parts immediately interested in the Operation for Cataract; with an Attempt to render the Operation itself, whether by Depression or Extraction, more certain and successful. With a Plate." This paper was read before the Royal Irish Academy on the 2nd November, 1788, and is printed in the 2nd Volume of the Transactions of that body, pp. 121 to 141. Index, p. 63.

"Sylvester O'Halloran, &c., his Communication of the original Martial Ode which was sung at the Battle of Cruha (in 155), by

Fergus, Son of Finn, and addressed to Goll, the Son of Morna; with a literal Translation and Notes." Published in the Transactions of the Royal Irish Academy. Antiquities, pp. 7 to 17. Index, p. 63.

"Sylvester O'Halloran(*a*), &c., his Attempt to determine, with Precision, such Injuries of the Head as necessarily require the Operation of the Trephine." Transactions of the Royal Irish Academy, vol. iv. Science, pp. 151 to 169. Index, p. 64.

"A new Treatise on the different Disorders arising from External injuries of the Head; illustrated by eighty-five (selected from above 1500) practical Cases. By Mr. O'Halloran, M. R. I. A., Honorary Member of the Royal College of Surgeons in Ireland, and of the Physico-Chirurgical Society, and Surgeon to the County Limerick Hospital. Dublin, 1793: printed by Zachariah Jackson, for W. Gilbert, Great George's-street." 8vo. pp. 335.

"A Philosophical and Medical Treatise on the Air, in two Parts, wherein its real Properties are investigated, against Toricelli, &c.; and Physicks attempted to be settled on more solid and rational Foundation. By Mr. O'Halloran, of Limerick, Author of a New Treatise on the Cataract." This is a thick quarto manuscript, of 172 pages, closely and legibly written, in the Library of the Royal Irish Academy, to which institution it appears it was presented by the Author.

Mr. Ferrar informs us in his History of Limerick, that O'Halloran was also the author of "A Comedy and a Farce, not published, with several essays, medical, historical, and political, in the magazines, &c.; in all of which he not only appears skilful in his profession, but learned in the Irish language and ancient laws, and a warm advocate for the honour and interests of his native country."

(*a*) In most of his printed works the Christian name is spelled with a *y*; but in writing he always spelled it with an *i*.